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PARTNERING DEFENSE DEPOTS WITH INDUSTRY FOR THE PERFORMANCE OF DEPOT-LEVEL MAINTENANCE: A CASE ANALYSIS OF THE AIM XXI PROGRAM

by
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Partnering the public and private sector for the performance of depot-level maintenance and repair is a relatively new concept. While partnering arrangements offer tremendous opportunities to increase the efficiency of the industrial base; to be successful, these arrangements require substantial effort and commitment from all involved parties. Partnering arrangements are complicated by their reliance upon full and open communication, plus their dependency on the total commitment of senior leadership from all involved organizations. Phase I of the Abrams Integrated Management for the Twenty-First Century (AIM XXI) program, a partnering arrangement between General Dynamics Land Systems (GDLS) and Anniston Army Depot (ANAD), which called for the complete rebuild and modernization of 17 M1A1s, offers valuable insight to acquisition professionals who are considering establishing a partnering arrangement. A principal finding of this research is the necessity for partnering arrangements to have the long-term commitment of senior management, and be thoroughly disseminated throughout the involved organizations, particularly to the mid-level managers who are responsible for executing the arrangement. Open and honest communication is the key to the success of partnering arrangements. Partnering is more than a new buzz-word brought about by Acquisition Reform (AR). It is a new dimension to the relationship between the public and private sectors. Acquisition officials must ensure that the parties fully understand this, and the groundwork for this environment is established prior to approving requests to partner.

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ABSTRACT

Partnering the public and private sector for the performance of depot-level maintenance and repair is a relatively new concept. While partnering arrangements offer tremendous opportunities to increase the efficiency of the industrial base; to be successful, these arrangements require substantial effort and commitment from all involved parties. Partnering arrangements are complicated by their reliance upon full and open communication, plus their dependency on the total commitment of senior leadership from all involved organizations. Phase I of the Abrams Integrated Management for the Twenty-First Century (AIM XXI) program, a partnering arrangement between General Dynamics Land Systems (GDLS) and Anniston Army Depot (ANAD), which called for the complete rebuild and modernization of 17 M1A1s, offers valuable insight to acquisition professionals who are considering establishing a partnering arrangement. A principal finding of this research is the necessity for partnering arrangements to have the long-term commitment of senior management, and be thoroughly disseminated throughout the involved organizations, particularly to the mid-level managers who are responsible for executing the arrangement. Open and honest communication is the key to the success of partnering arrangements. Partnering is more than a new buzz-word brought about by Acquisition Reform (AR). It is a new dimension to the relationship between the public and private sectors. Acquisition officials must ensure that the parties fully understand this, and the groundwork for this environment is established prior to approving requests to partner.

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I. INTRODUCTION

A. PURPOSE

The purpose of this research paper is to examine partnering arrangements between the public and private sector for the performance of depot-level maintenance and repair. The researcher has developed a case analysis of the non-contractual partnering arrangement between General Dynamics Land Systems (GDLS) and Anniston Army Depot (ANAD) in executing phase I of the Abrams Integrated Management for the Twenty-First Century (AIM XXI) project.

B. BACKGROUND

The Federal Government has always relied on the private sector to supply some amount of goods and services. One of the first examples of this occurred during the Revolutionary War when the Navy needed help building the USS CONSTITUTION. The project had fallen behind schedule, so "the Government summoned shipbuilders to Boston from as far as Georgia." [9, p10] Since that time there has been, in some form or another, an industrial base tailored to providing goods and services to the Federal Government.

A recent push among many lawmakers is to outsource or privatize many public jobs. Others however believe privatization would place the Department of Defense (DoD) in a position of trying to "negotiate readiness." The latter feel that the possible savings gained by privatization and outsourcing are not worth the risk incurred. In other words, if we are called to war will we be ready? Finally, there is the group that wants further analysis subsequent to committing themselves to one school of thought. This last group realizes that there are benefits to outsourcing and privatization, but wishes to explore additional alternatives to see which one best satisfies DoD's needs. Those factions looking for opportunities to outsource are aggressively pursuing recent efforts to outsource many infrastructure assets.

DoD has identified their maintenance depots as one possible activity to outsource. It does seem to make sense. It would appear that the maintenance activities' functions would cross over nicely to private organizations since, at the time of the 1995 Base Realignment and Closure (BRAC), the General Accounting Office (GAO) reported that the DoD depot system had 40 percent excess capacity.

The DoD is not alone in stating that the maintenance depots are a strong candidate for outsourcing. In a 1996 study, the Defense Science Board (DSB) strongly supported outsourcing. The report stated, "DoD could use outsourcing as an important tool to free up substantial funds to support defense modernization. -- While the Services and Defense Agencies are making progress in developing outsourcing programs, a broader, more aggressive outsourcing effort is needed." [12]

As an alternative to outsourcing, DoD has begun an initiative to foster partnering arrangements between public and private industry. Partnering arrangements capitalize on the strengths of the total industrial base and creates a greater capability to surge in time of crisis. Partnering arrangements are a new concept and represent a departure from previous practices in which the public and private sectors were not encouraged to work together.

C. RESEARCH QUESTIONS

1. Primary Research Question

Based on the lessons learned from the AIM XXI partnering arrangement between GDLS and ANAD, what are the critical ingredients for successfully forming a public/private partnership?

2. Secondary Research Questions

a. What is the overall DoD environment in relation to the performance of depot-level maintenance and repair and how does this influence the AIM XXI program?

b. How does the Competition in Contracting Act (CICA) impact the partnering arrangement?

d. How does the "Arm's-Length" interface between the public/private sector impact partnering arrangements?

e. What are the key considerations for a contracting professional in structuring a partnering arrangement?

D. SCOPE OF THE THESIS

The researcher has analyzed the partnering arrangement from a contracting officer's perspective using phase I of the AIM XXI project a case study. It includes a literature review of major outsourcing/partnering issues that affect depot-level maintenance, as well as provided an overview of the current depot-level maintenance and repair. The partnering arrangement between GDLS and ANAD has been examined, with concentration on business management, work relations, and disputes resolution.

E. METHODOLOGY

The first objective of this research paper is to provide an overview of the current public/private relationship within DoD regarding the performance of depot-level maintenance and repair. This will be accomplished through a literature review of sources including, but not limited to, the following:

- Unclassified Department of Defense publications;
- Published academic research papers;
- References, publications and electronic media (e.g., National Technical Information Service) available at the Naval Postgraduate School (NPS) library;
- Internet websites and homepages (DoD, commercial, and academic); and
- Interviews with faculty at NPS

The next objective is to perform a case analysis of the partnering arrangement between GDLS and ANAD for phase I of the AIM XXI project. The primary sources of information has been the Government program management office (Program Manager M1A1), the contractor (General Dynamics Land Systems), the defense depot (Anniston Army Depot), and Tank-Automotive Command (TACOM) project integrators. Also, interviews have been conducted with the Procuring Contract Officer (PCO) and Administrative Contracting Officer (ACO). Lessons learned have been extracted from phase I of the AIM XXI case analysis.

F. ORGANIZATION

- Chapter I. Introduction The introduction identifies the focus and purpose of the thesis and states the primary and subsidiary research questions.
- Chapter II. Defense Depot Environment This section provides an overview of the current environment and policies governing depot-level maintenance in DoD. Chapter II also provides background information on the history of ANAD and their relationship with GDLS.
- Chapter III. The M1 Abrams, Partnering, and the AIM XXI Project Introduces the M1A1 Abrams Main Battle Tank and provides a short history of the vehicle. Next it provides an thorough inquiry of partnering arrangements. Lastly, it provides background on the overall AIM XXI project and the partnering arrangement between GDLS and ANAD.
- Chapter IV. AIM XXI Case Analysis Provides analysis of the major partnering issues and challenges in the AIM XXI project, and
- Chapter V. Summary, Recommendations, and Conclusions Summarizes the findings of the research, and answers the research questions.

G. BENEFITS OF STUDY

The primary benefit of this study is documentation of major contract management lessons learned from the partnering arrangement for phase I of the AIM XXI project. Future PCOs and ACOs can benefit from the experiences of current programs and use these lessons to continuously improve the partnering process.

II. DEFENSE DEPOT ENVIRONMENT

A. CHAPTER INTRODUCTION

America's role as a superpower is based on many interrelated factors. One of these factors is its strong military, supported by a robust infrastructure. This infrastructure is composed of both public and the private-sector elements. Within the public-sector is the defense depot, which provides depot-level maintenance and repair of military weapon systems, parts, assemblies, and subassemblies.

For many years the subject of who should provide the lion's share of support to DoD weapon systems has caused much controversy and has been thoroughly studied and debated on Capitol Hill. In spite of the studies and debates, the workload balance between the public and private-sector has yet to be resolved in a mutually satisfactory manner.

This purpose of this chapter is to provide an overview of the defense depot system from a historical perspective. The chapter includes background on DoD policies, regulations, and guidance concerning depot-level maintenance and repair. Next is a discussion of the controversy regarding the performance of depot-level maintenance and repair. This section provides the reader with a better understanding of the politically-charged environment surrounding the issue of depot maintenance workload distribution. The final section discusses the historical relationship between GDLS and ANAD.

B. DEFENSE DEPOT BACKGROUND

Depot-Level maintenance and repair entails repair, rebuild, major overhaul, limited manufacture of parts, technical support, modifications, testing, reclamation, and software maintenance. [39, p1] The private-sector has traditionally provided the weapon systems themselves to include much of the research and development, and manufacturing capabilities. Subsequent to the end of the cold war, the depot system enjoyed a reasonably stable existence. At their high point in 1987, the depot system had 156,000 Federal Government employees and operated some 38 depots and shipyards.

The depot system was designed around the premise that the necessary skills, facilities, and equipment to sustain a protracted engagement of sizable force against substantial enemy were not immediately available in the private-sector. [39, p2] When the cold war ended, leaving only one super-power, the United States was forced to reexamine its role in world politics and the manner in which it provided for the national defense. In examining its National Military Strategy and military structure, it realized the cold war military was no longer justifiable given current and projected threats. Furthermore, there was a growing concern among many Americans regarding the country's national debt, which exceeded three trillion dollars. A balanced budget had not passed through both the legislative and executive branches of the Federal Government in two decades. This growing concern among the voters elevated the issue of national debt into the political arena. The Federal Government began a search for the "peace-dividends" created by the conclusion of the Cold War.

To achieve these peace dividends, in 1988 the United States began a drawdown of its military forces. Simultaneously, the military was undergoing a Base Realignment and Closure (BRAC) process. These efforts were designed to "right size" the military structure to more efficiently meet the requirements of national defense. Currently, after three rounds of BRAC, the depot system has 89,000 Federal Government employees and operates 30 major depot maintenance facilities. Of the 30 depot maintenance facilities still in operation, some are in the process of closing. [39, p2] "When the BRAC process is completed in 2001, only 19 of the 38 major organic depots that existed in 1988 will remain in operation as Government activities." [39, p2]

C. DOD DEPOT MAINTENANCE AND REPAIR POLICY

DoD plainly states that depot maintenance capabilities are and will continue to be vital to national security. However, they do not mandate who must provide this capability. DoD cites, as their major attribute, the depot's focus on responsive capabilities to ensure readiness and sustainability for the Total Force in both peace and war. In the

overview of depot maintenance DoD does stress they are, "attempting to create the leanest possible infrastructure consistent with providing essential support capabilities." [39, p6]

DoD delegates, to each of the Service components, responsibility for providing an adequate program for maintenance of assigned material in accordance with specific policies. An overview of the policies effecting depot-level maintenance follows: [39, p8-58]

1) Establish core depot maintenance capabilities to meet essential wartime demands, promote competition, and sustain institutional expertise. These capability requirements shape the minimum amount of organic depot facilities, equipment, and personnel that DoD maintains as a ready and controlled source of technical competence. Core capabilities mitigate the operational risks associated with maintaining readiness for successfully completing, and expeditiously recovering from contingency operations. DoD defines core as, [39, p8]

> the capability maintained within organic Defense depots to meet readiness and sustainability requirements of the weapon systems that support the Joint Chiefs of Staff (JCS) contingency scenario(s). Core exists to minimize operational risks and to guarantee required readiness for these weapon systems. Core depot maintenance capabilities will comprise only the minimum facilities, equipment, and skilled personnel necessary to ensure a ready and controlled source of required technical competence. Depot maintenance for the designated weapon systems will be the primary workloads assigned to DoD depots to support core depot maintenance capabilities.

DoD also emphasizes in their policy letter, [39, p9]

> It is important to note that not all critical or mission-essential weapon systems and equipment will necessarily be maintained in organic depot maintenance facilities, but the capability to perform depot maintenance on designated weapon systems must be maintained organically. Simply put, core represents the minimum amount of maintenance capability that the DoD Components must maintain in organic depot facilities to ensure that contingency operations are not compromised because of a lack of essential depot maintenance support.

In order to facilitate the Service component's determination of core capability requirements and the depot maintenance workloads necessary to sustain these capabilities, DoD developed a standard methodology. After each Service component has determined their core requirements, DoD then sums this information to become the total DoD requirement for core. The primary modification in the modified methodology is a best value assessment of the private-sector's ability to assume workloads not required to maintain the capability of the organic industrial base. The Services will conduct a risk assessment for essential workloads that historically dictate retention as a core capability. The process provides for the private-sector competing for those workloads they are able to perform with acceptable risk, reliability and efficiency. Workloads not required to sustain core do not require a risk assessment. In addition, the Services recognize that a system may be divided into its components and that not all the depot maintenance of a weapon system is necessary to sustain core capability. Therefore, there may be a mix of private and public-sector support for the same system.

2) Structure depot maintenance support capabilities to provide essential levels of readiness and sustainability.

3) Support depot maintenance workloads using a mix of both public-sector and private-sector capabilities.

4) Make 'best value" a primary consideration in satisfying workload requirements other than those necessary to sustain core capabilities.

5) Use evaluation procedures for depot maintenance workload competitions that provide, in the case of public/sector - private-sector competitions, comparable as well as comprehensive costs for the public-sector.

6) Establish and monitor performance metrics for both organic and contract depot maintenance operations.

7) Establish financial management processes that provide accurate and comprehensive reporting of depot maintenance efforts at both the macro and workload levels.

8) Ensure that organic depots can compete with private-sector sources of repair when there does not appear to be adequate competition for specific DoD workloads within the private sector; restrict from any such competitions those organic depots that are being closed.

9) Permit organic depots to sell services and goods, when appropriate, to other Federal Agencies and the private-sector in support of DoD requirements.

10) Accomplish weapon system modifications and upgrades in the private-sector except when it is more efficient and economical to accomplish such work concurrent with other organic depot maintenance.

11) Ensure that in placing workloads in the private-sector, DoD receives gains that are typically made possible by the operation of market forces (e.g., reduced costs and cycle times).

12) Plan on supporting new or developing weapon systems in the private-sector consistent with the DoD core policy.

13) Encourage best value commercial firms to enter into stable partnerships with organic facilities and to co-use organic capabilities consistent with applicable statutes.

14) Permit leasing out of under-utilized DoD plants and equipment to contractors consistent with applicable statutes.

15) Ensure that Government facilities that transition into private sector entities can be reestablished in the case of national emergency or nonperformance.

D. DEFENSE DEPOT CURRENT POLITICS: BEYOND THE BRAC

In addition to downsizing actual military forces by 700,000 people since 1989 -- about one-third of the active force, defense spending has been cut by 45 percent since 1985. "In Fiscal Year (FY) 1998, defense spending will represent only three percent of the Gross Domestic Product (GDP) -- the lowest since before World War II." [48, p24]

Hardest hit by the cuts in defense spending have been the modernization or investment accounts. In fact, in constant FY96 dollars, procurement, also known as

modernization, has fallen from a peak of $126 billion in FY85 to only $39 billion in FY96 -- a 69 percent reduction. Today, modernization accounts constitute only 18 percent of the total DoD budget. DoD is committed to maintaining readiness, quality of life, and modernization; while, simultaneously, the amount of dollars available to meet these demands are either steadily decreasing or promised in the out years. This is not an easy task. DoD feels it can meet these challenges today and free-up the additional resources required for modernization in the future by managing its internal operations, and particularly its support activities, more efficiently. [38, p2-5]

The Military is dedicated to achieving the DoD goal of maximizing the utility of every dollar spent. Gen. Dennis J. Reimer, the Army Chief of Staff, personally showed his support for the initiative by stating,

> I think you do it [improving the modernization account] by focusing on acquisition reform. To the extent that you become more efficient for privatization and outsourcing, you look at those things. The whole idea here is to try to get more buying power out of the dollars that were given. [33, p12]

DoD has begun a series of initiatives to increase the efficiency of its operations. First, the DoD has significantly reduced infrastructure costs through BRAC process. In FY96, the BRAC budget crossed over from a net loss to a net surplus on DoD budgets. BRAC will generate net savings of $17.8 billion dollars over the next five years. DoD estimates that the four BRACs, when fully implemented, will result in an annual net saving of approximately $5.5 billion. Second, DoD has initiated a thorough reform of the acquisition process. They are currently implementing these reforms. DoD is beginning to see results and believe the reforms will lead to substantial efficiencies and savings in the future. Third, DoD is now beginning a systematic review of its support operations to determine where competitive forces can improve overall performance at lower cost. Outsourcing, privatization, and business reengineering offer significant opportunities to generate many of the savings necessary for modernization and readiness.

E. DEPOTS' UTILITY IN QUESTION

Since World War II, the private-sectors' capabilities have significantly increased, permitting DoD to rely more heavily on them for efficient and effective depot-level maintenance. In fact, the DoD has relied on the private-sector for the production of most new weapon systems due to the private-sector's increased capabilities. This increased capability in the private-sector along with the perception of less bureaucracy and greater flexibility has caused many to ask if there is actually a requirement to maintain a seemingly redundant infrastructure in both the public and private-sectors. This situation was further exacerbated by three reports indicating that much of the infrastructure work performed by DoD was redundant, inefficient, and could be performed by the private-sector for less cost. A summary of these reports follows: [42, p2]

1. Commission on Roles and Missions (CORM)

The CORM was published in 1995. It was the first significant study to indicate that there are significant cost saving available to DoD through outsourcing traditionally public functions. In the CORM's charter, they were tasked to identify opportunities to increase efficiency and save money. In doing this the CORM reviewed all central support activities: logistics, medical, training, personnel, headquarters, acquisition management, and installations and facilities. The CORM first highlighted that over a quarter of a million DoD employees engage in commercial-type activities that could be performed by private industry. The study suggested that there are achievable cost reductions of approximately 20 percent. In addition to cost reductions, the CORM wrote that private industry could simultaneously enhance effectiveness.

While addressing the area of material management, the CORM recommended that the Government essentially outsource all wholesale-level warehousing and distribution, wholesale-level weapon system depot maintenance and repair, property control and disposal, and incurred-cost auditing of DoD contracts. [37, pES1]

The CORM made several suggestions regarding opportunities to pursue in achieving the cost savings and enhanced efficiency. Their primary insistence was to implement the long standing national policy of relying primarily on the private-sector for services that need not be performed by the government, and to reengineer the remaining government support organizations. The following are the CORM's recommendations regarding outsourcing and depot-level maintenance and repair: [37, p3-3 - 3-8]

- Outsource all commercial type support activities.
- Outsource new support requirements.
- OMB withdraw Circular A-76; Congress repeal or amend legislative restrictions; DoD extend to all commercial-type activities a policy of avoiding public/private competition where adequate private-sector competition exists.
- DoD move to a depot maintenance system relying on the private-sector.
- Direct support of all new systems to competitive private contractors.
- Establish a time-phased plan to privatize essentially all existing depot-level maintenance.
- Create an office under the ASD (Economic Security) to oversee privatization of depots.

While the CORM ardently argues to outsource essentially all material management functions, they acknowledge the value of highly-skilled work forces, and heavily-capitalized depot facilities. They suggested that these assets would make the depots prime candidates for privatization-in-place.

The CORM does concede that although there are tremendous savings available through outsourcing many commercial activities, not all commercial activities lend themselves to outsourcing. The conditions for favorable outsourcing may not always be present and the Government must retain certain core functions to best serve the public interest. [37, p3-3] However, the CORM concludes their recommendations by stating that DoD should rely on the private-sector for all *new* support activities.

2. Defense Science Board (DSB) on Outsourcing and Privatization

a. General Recommendations of the DSB

The DSB report was released in 1996. The charter of the DSB task force on outsourcing and privatization was to develop recommendations on ways DoD could use outsourcing as an important tool to free-up substantial funds to support defense modernization needs. The DSB task force was convinced that an aggressive DoD outsourcing initiative will improve the quality of support services at significantly reduced costs. The task force recommended that the Secretary of Defense (SECDEF) set a target of the year 2002 to generate between seven to twelve billion dollars in outsourcing-related savings to fund the expansion of investment programs for DoD. The task force asserted a belief that all DoD support functions should be contracted out to prime vendors except those inherently governmental functions, which are directly involved in warfighting, or where no adequate private-sector capability exists or can be expected to be established. In order to achieve these benefits the DSB task force recognizes that three major changes must take place: [40, p2]

1. changes in Defense policies and procedures to facilities outsourcing
2. relief from legislative impediments and regulatory constraints
3. improvements in Defense contracting procedures and incentives to encourage greater reliance on outsourcing.

The task force indicated that most defense agencies are prime candidates for outsourcing. The task force specifically recommended DoD consider outsourcing major portions of the Defense Commissary Agency (DCA), the Defense Information Systems Agency (DISA), and the Defense Finance and Accounting Service (DFAS) to initiate steps toward streamlining defense infrastructure.

Much of the DSB's information was developed by extrapolating outsourcing data from the private and public-sector. They cited studies that indicate that

outsourcing is expanding rapidly to provide a wide range of services. The report also indicated that although cost savings are a factor in outsourcing; other benefits are reaped through outsourcing, to include access to better technology and better qualified people. Many companies turn to outsourcing to allow management to focus more of their time and energy on the business's core competencies. The public-sector has also confirmed the value of outsourcing. Many Federal, State, and Local Government functions have been outsourced and resulted in over a thirty percent savings and providing better, more responsive support.

b. Private-sector Outsourcing: Lessons Learned

The task force captured many lessons learned from the private-sectors' experiences while transitioning to outsourcing services. These critical ingredients for a successful outsourcing venture are focused on management issues. [40, p 22A]

- Senior executive leadership: The commitment to make this work must be top-driven.
- Outsource broad processes: This permits the streamlining of contract management and oversight functions. It also encourages greater synergy of outsourced activities.
- View benefits from life-cycle: The true benefits of outsourcing may take time to fully manifest themselves. Disagreements regarding scope or vendor strategies are common during the early stages of outsourcing.
- Small, highly-trained oversight cadre: The savings and flexibility provided by outsourcing could be lost if the client firm imposes a large and bureaucratic oversight structure.
- Partnership: Foster an environment of collaborative problem-solving rather than an adversarial or us-versus-them relationship. "Outsourcer must establish a true partnership with the vendor and approach problem-solving as a team."

c. Legislative Prohibitions to Outsourcing

The CORM identified several legislative provisions that restrict DoD's ability to increase its reliance on the private-sector. These provisions and a brief summary of each are listed below: [40, p38A]

1) 10 USC 2461: Mandates extensive reporting to Congress, including cost comparison study, subsequent to outsourcing any function performed by more than 45 DoD employees.

2) 10 USC 2464: Requires SECDEF to identify "core" logistics functions which cannot be outsourced, and prohibits DoD from changing the classifications to non-core without the approval of Congress.

3) 10 USC 2465: Prohibits outsourcing of civilian firefighters and security guard functions at military bases.

4) 10 USC 2466: Limits outsourcing of depot maintenance to 40 percent of the funds available.

5) 10 USC 2469: Depot maintenance greater than three million dollars may not be outsourced without conducting a public/private competition.

6) Section 8020 of the FY96 DoD Appropriations Act: Prohibits DoD from expending any funds to outsource DoD functions performed by more than ten DoD civilian employees until a most efficient and cost effective analysis has been completed and the results certified to the Congressional Committees on Appropriations.

7) Section 8043 of the FY96 Appropriations Act: Prohibits DoD from expending any funds on A-76 cost comparison studies that exceed 24 months for one function or for 48 months for more than one function.

8) Section 317 of the FY87 DoD Authorization Act: Prohibits DoD from outsourcing any function performed at McAlester or Crane Army Ammunition Plants.

The task force described the impact of the above mentioned impediments by stating they: [40, p39A]

increase the involvement of Congress in outsourcing decisions and expand opportunities for Congressional micromanagement; require extensive Congressional notifications and reporting, including the preparation of exhaustive cost analysis studies; impose arbitrary limits on the share depot-level maintenance workload that may be outsourced to private contractors; and establish arbitrary exemptions from outsourcing of selected functions such as fire safety and physical security. Moreover, the history of Congressional reaction to past DoD outsourcing initiatives has a "chilling effect" on DoD activities that are considering contracting out other workloads.

Taken together, the current legal environment encourages the politicization of the outsourcing decision process, and thereby complicates, delays, and discourages DoD efforts to increase its reliance on private vendors for support services.

d. DSB Examination of A-76

The task force criticized the contradictory and restrictive nature of Office of Management and Budget (OMB) Circular A-76 Performance of Commercial Activities. This publication is commonly known as A-76. [41, piii]. A-76 was written to establish Federal policy for the performance of recurring commercial activities. It has been revised periodically over the years. The latest revision of A-76 was written in March 1996. The task force claims that A-76 is contradictory and restrictive because it states that the official policy of the Federal Government is to rely primarily on the private-sector for commercial-type products and services. However, A-76 establishes 'highly formalized, legalistic, and time-consuming procedures for conducting public/private competitions. These procedures favor government entities and ultimately discourage an aggressive DoD strategy to outsource support functions.'[40, p41A] The task force argued that A-76 favors the government in Public/Private Competition (PPC) due to the process it established to conduct a PPC. First, a Performance Work Statement (PWS), defining the function's subject to PPC, must be developed. After finalizing the PWS, DoD solicits bids or proposals from the private-sector. Concurrently, the public-sector organization performing the function considered for PPC submits a bid or proposal based on its Most Effective Organization (MEO), not on its current prevailing cost structure. 'The MEO

may project staff reductions or other cost-saving measures to reduce the costs of performing the completed function." DoD then compares the bids/proposals. Again the advantage goes to the public-sector; unless the private-sector bid/proposal is more than 10 percent below the public-sector's or projected savings exceed $10 million over five years, the work remains with the public-sector. If the work does remain with the public-sector, the MEO is implemented through the budget process and personnel end strength authorizations. Another fault in the PPC is the time required to complete the process. "The Services indicate that the A-76 process takes at least 24 months for simple, narrow functions requiring only the submissions of sealed bids. More complex or multiple functions involving full technical and cost proposals require 48 months or more." This greatly inhibits DoD's ability to conduct PPCs and comply with Section 8043 of the FY96 Appropriations Act. In addition to these restrictions, Congress removed depot-level maintenance from the jurisdiction of A-76 in the mid-1980's. The task force further claimed that the PPC favors the public-sector due to the public-sector's lack of accounting systems and internal controls needed to ensure an accurate allocation of indirect costs. They state that the cost accounting systems are designed for control, reporting to Congress, not managing enterprises.

e. DSB's Conclusion and Final Recommendation

The task force viewed outsourcing as a practical means to freeing up the critical resources necessary to modernize our forces, not as an end to itself. In conclusion, the DSB task force stated that, "as a matter of principle as well as for reasons of sound policy, all DoD support activities that are commercial in nature should be provided by private venders." [40, p3-8] In addition, they stated that the Government should not be competing for business with its own citizens and that private-sector is the primary source of creativity, innovation, and efficiency; and are more likely to provide cost-effective support to the Military Forces. The following list is the key elements of an aggressive outsourcing strategy, as proposed by the Task Force: [40, p50A]

- Establish a presumption of outsourcing.
- Reduce reliance for A-76.
- When A-76 is necessary, expedite the process and "level the playing field."
- Outsource broad support functions.
- Eliminate statutory and institutional impediments.
- Establish implementation plan with aggressive targets and milestones - hold senior managers accountable.

3. Quadrennial Defense Review (QDR)

The QDR was established to "develop an overarching defense strategy to deal with the world today and tomorrow, identify required military capabilities, and define the programs and policies needed to support them." The QDR quickly points out the 38 percent reduction in the defense budget, since 1985. Of the 38 percent budget cut, force structure absorbed 33 percent, and procurement programs, 65 percent. While the QDR praises its success in carefully protecting military readiness to carry out its missions during the drawdown, it also acknowledges its failure to acquire the modern technology and systems essential for protecting our national security interest in the future. [25, p1]

To repair this deficiency, the QDR examined three alternatives. The alternatives differed in where they accepted risks and emphasized procurement spending over the near term, midterm, and long term. The QDR chose to pursue the alternative that best delivers a balance between the present and future. This alternative recognizes that U.S. interest and responsibilities do not allow us to choose between the present and the future. This balanced approach retains enough force structure to sustain leadership and meet today's requirements, while consecutively investing in the future force.

This balanced alternative requires reallocation of resources and priorities to achieve the optimum capabilities to shape, respond, and prepare over the full period covered by the QDR. Part of the reallocation will include trimming current forces; primarily in the support structure. "To preserve combat capability and readiness, the

Services have targeted the reductions by streamlining infrastructure and outsourcing non-military-essential functions." [25, p6] Secretary Cohen highlights force structure been reduced by 33 percent and will have declined by 36 percent when the QDR initiatives are complete. However, the domestic infrastructure will have only been reduced by 21 percent. He makes the this analogy, 'In essence, our combat forces are headed towards the 21st century, but our infrastructure is stuck in the past. We cannot afford this waste of resources in an environment of tough choices and fiscal constraint." [25, p9]

The QDR praises the ongoing efforts to streamline DoD business practices and acknowledges the savings reaped through the initiatives of acquisition reform and the first four BRAC rounds. The report then states that DoD needs to go much further and deeper in cutting cost, and they need congressional support. Their review identified enough excess infrastructure to justify two additional rounds of BRAC; including research, development and test facilities, laboratories, and ranges.

The QDR maintains that DoD must make many tough evaluations regarding their institutions and infrastructure's contribution to overall military effectiveness. Secretary Cohen proclaims, "Ultimately, we need to decide what is more important: [25, p10]

- keeping a maintenance depot in government hands, or putting advanced technology in soldiers' hands;
- protecting a facility, or protecting our forces;
- preserving local defense contracts, or promoting solid enlistment contracts."

Section VIII of the report is devoted to DoD's plan to achieve a 21st Century Defense Infrastructure. The report stresses DoD's need to be leaner, more efficient, and more cost-effective to best serve the warfighter faster, better, and cheaper in the 21st Century. The forces envisioned for the 21st Century require a radically different support structure and steadily increasing modernization accounts. DoD has identified support operations as the best source of funds for modernization.

DoD describes its infrastructure as, "a diverse set of activities carried out by an

even more diverse set of organizations." [26, p6] The support operations include: installations; training programs for military personnel; logistics support; central personnel services; headquarters functions; medical care for active duty, their family and retired military personnel; science and technology programs; central command; and communications services. In total, this infrastructure comprises 61 percent of DoD employees.

To address Secretary Cohen's concerns regarding the disparity between the reductions of force structure and infrastructure, the report proposed the following actions: [26, p2]

- Make a further reduction of 109,000 civilian and military personnel associated with infrastructure beyond the initiatives in the DoD budget for FY98. This will bring the reductions in infrastructure to 39 percent, since 1989.
- Request authority for two additional rounds of BRAC, one in 1999 and the second in 2001.
- Improve the efficiency and performance of DoD support activities by adopting innovative management and business practices of the private-sector.

The Bottoms Up Review (BUR) and other previous studies that had identified similarities between large portions of DoD infrastructure and business activities, and the recognition that American business practices have undergone a revolutionary transformation, motivated the QDR to examine the operations of DoD infrastructure. Prior to the QDR, DoD had planned to reduce infrastructure-related personnel by 58,000 civilian and 20,000 military positions over the Future Years Defense Plan (FYDP). After examining lessons learned from the private-sector's reengineering, DoD believes they can further reduce infrastructure costs and personnel requirements. To achieve this reduction the QDR proposed: [26, p4]

> Conduct public-private competitions for depot maintenance work that does not contribute to core capability when other appropriate outsourcing criteria are met. In addition, we will partner in-house facilities with industry to preserve depot-level skills

and utilize excess capacity. Savings will be achieved as a result of these competitions and the reductions in excess capacity.

In conclusion, the QDR acknowledged that some of their proposals were not within their authority to determine. The report identified legislation that DoD must seek to have revoked to facilitate their efforts to lower infrastructure cost without sacrificing military capability. The two issues that DoD is seeking statutory relief are: [26, p6]

- DoD needs the flexibility to reduce physical capacity through a process like the BRAC legislation used to reduce excess base structure associated with the post-Cold War drawdown of U.S. forces.
- DoD is required by statue (10 USC Section 2466) to perform 60 percent of depot maintenance activities in public depots. Relief from this provision would enable DoD to contract out functions that do not support core capabilities and that can be performed less expensively by private-sector firms.

The QDR closes their report by emphasizing their focus on ensuring the U.S. military is able to fight and win the nation's wars. They note that a robust and modern infrastructure is essential to this end. However, DoD states "it is clear that further reductions are possible, and must be made in order to support training, modernization, and operational requirements at less cost." [26, p6]

F. THE GAO REPORTS EXCESS DEPOT CAPACITY

The General Accounting Office (GAO) reported in 1996 that the DoD depot system had 40- 45 percent excess capacity, at the time of the 1995 BRAC. This is based on an analysis of maximum potential capacity for a five-day week, one eight-hour-per-day shift operation. [43, p5] This GAO report was extremely critical of DoD's efforts to privatize-in-place the Sacramento and San Antonio Air Logistics Centers. Their analysis indicated that it will prove much more cost-effective to close those facilities and reallocate the work to other depots or private-sector facilities having unutilized capacity. While

DoD stated its plan reflects concerns about the near-term costs of the closures and the potential effects on local communities and Air Force readiness. The GAO projected savings of approximately $182 million annually through transferring the centers' workload to existing depots that have tremendous excess capacity.

G. DEFENDING THE DEPOTS

The CORM, DSB, and QDR were not received by all with the same enthusiasm. There are several entities, motivated by different reasons, who were very skeptical of these reports.

1. GAO Investigates Depot Outsourcing

The GAO analyzed DoD's maintenance policy and workload analysis, as required by Section 311 of the National Defense Authorization Act for FY96. Their preliminary findings are as follows: [43, p9]

> First, it provides an overall framework for managing DoD depot maintenance activities. Second, it sets forth a clear preference for moving workload to the private-sector, which will likely result in a much smaller core capability than exists today. Third, it is not consistent with congressional guidance in one key area--the use of public-private competitions. Fourth, the policy provides substantial latitude in implementation. As a result, the precise affect of this policy on such factors as public-private mix, cost, and excess capacity remain uncertain.

The second and third observations are very significant. DoD has now stated a preference for privatizing maintenance support for new systems and for outsourcing non-core workload. DoD is changing their method of identifying core. Core no longer means that primarily DoD depots will perform wartime work. Now, DoD's core concept is for its depots to perform maintenance requirements that the Service secretaries identify as too risky for the private-sector to perform. DoD's policy subscribes to maintaining only "minimum capability" which does not necessarily mean a workload for a depot. The

Services will conduct risk assessments, identifying readiness; sustainability; and technology; to determine if the work should be made available for competition within the private-sector. GAO states that it is unclear as to the extent measured criteria or subjective judgment will be used for the assessments.

When GAO stated that DoD's policy is inconsistent with Congressional guidance; they are referring to the DoD policy to engage in public-private competition for workloads in excess of core only when it determines "there is not adequate competition from private-sector firms alone." "Under this policy, DoD depots would be used sparingly for public-private competitions and DoD depots cannot compete for any non-core workloads, where adequate private-sector competition exists, even though the DoD depots could offer the most cost-effective source of repair." [43, p11] In addition, DoD is now considering privatizing intermediate maintenance of DoD weapons and equipment. These functions have traditionally been considered core. [38, p11]

DoD's push to privatize is based upon an underlying assumption that privatization will result in 20 percent savings and these savings will be available to support the Services' modernization programs. DoD's assumption is based on the CORM report. The 1995 CORM did suggest that 20 percent savings could result from the privatization of depot maintenance and they made the recommendation that DoD implement this costs saving effort. The commission's proposal was to reject the notion of core; to outsource all new support requirements, particularly the depot-level logistics support of new and future weapon systems; and establish a time-phased plan to privatize essentially all existing depot-level maintenance. The DoD agreed with most of the CORM. However, they noted in their response to Congress that they must retain a limited core depot maintenance capability to meet essential wartime surge demands, promote competition, and sustain institutional expertise.

When the GAO investigated the CORM's findings; they discovered that the CORM had based the 20 percent on reports of projected savings from public/private competitions for various commercial activities as part of the implementation of OMB

Circular A-76. These commercial activities 'included various base operating support functions, such as family housing, real property, and vehicle maintenance, civilian personnel administration, food service, security and law enforcement, and other support services. While these activities were varied in nature, they had similarities in that they generally involved low-skilled labor; required little capital investment; generally involved routine, repetitious tasks that could readily be identified in a statement-of-work; and had many private-sector offerors who were interested and had the capability to perform the work. [43, p13-14]

The GAO reviewed A-76 competitions and public-private competitions for depot-level maintenance and found that the 20 percent projected savings were not achieved. Specifically, GAO found that: [43, p14-15]

- In situations where public-private competitions for DoD depot maintenance were held, reengineered public activities won 67 percent of the non-ship competitions based on cost.
- There were inherent problems writing concise statements of work for the complex depot activities. The modifications to the statements of work resulted in cost increases for privatized work.
- The A-76 competitions cost savings were not directly quantifiable. They did not consider several costing factors such as; the cost of the competition or the administration of the contract. When public contracts were audited, savings were often less than projected. The contracts that were won by public bids averaged 40 percent less than the lowest private-sector bid.
- There was not an abundance of private-sector competitors willing to place bids. The A-76 was basing their estimated savings for public-private competitions on situations involving four or more private offerors. Of the competitions reviewed, 22 had no private offerors, and 33 had only one. Only 28 of the competitions had three or more private offerors.

To further investigate the use of competitive procedures for outsourcing of DoD's depot maintenance, GAO selected 240 of the 8,452 depot maintenance contracts awarded during 1995. The 240 contracts were valued at $4.3 billion. GAO's investigation revealed: (1) 182, or 76 percent, of the contracts were awarded through sole-source negotiation; (2) 49, or 20 percent were awarded through full and open competition, and (3) nine, or four percent were awarded through limited competition. The full and open competition contracts accounted for 51 percent of the total dollar value and the 182 sole-source contracts accounted for 45 percent of the dollar value.

The GAO's investigation discovered that the majority of the contracts went to a small number of contractors. The 240 contracts were awarded to 71 contractors; 13 of these contractors were awarded 76 percent of the $4.3 billion. Three of these 13 contractors had been awarded $1.3 billion of the workload. [43, p16]

The analysis also revealed that the private-sector was more competitive for certain items than others. Common type items such as trucks, ground vehicles, engines, and airframes were often competitive. For other, military-unique, items such as fire control systems, communications and radar equipment, and electronic components, the buying commands used both the public and private-sector sources for repair of limited items. The GAO examined 414 of the items repaired by both the public and private-sectors to make price comparisons. 'For 62 percent of the items, the contract price was higher than the price for the same item repaired in a DoD depot." [43, p17]

Another issue that has caused much debate is DoD's desire to privatize-in-place vice consolidate the existing public depot maintenance facilities. As stated earlier, DoD's depots currently average 40 percent excess capacity. This excess capacity has been addressed through the BRAC process. In the depot's heydays of the late 1970's, the U.S. Army had 10 active depots in the continental United States and two in Europe. 'Table 1.1 identifies the five remaining Army depot-level maintenance activities, provides a general description of each depot's workload, and highlights the potential affect of the implementation of BRAC decisions." [42, p3-4]

However, DoD plans to privatize-in-place tactical missile and Paladin self-propelled artillery systems that are currently maintained by the public-sector at Letterkenny Army Depot and will privatize non-core vehicle and equipment currently maintained at the Red River Army Depot. This plan is causing the GAO to be concerned regarding excess capacity that is not being sufficiently reduced by privatizing-in-place. They estimate that DoD's current plan will increase the excess capacity from 42 percent to 46 percent. The GAO reports that privatization-in-place actually privatizes excess capacity and creates excess capacity conditions in the private-sector. They charge that opportunities exist to significantly reduce the cost of depot maintenance by transferring workloads from closing and downsizing depots, rather than privatizing-in-place. This workload transfer will improve utilization and decrease of operations at the remaining

1995 BRAC Effect on Depot System

DEPOT	WORKLOAD DESCRIPTION	POTENTIAL AFFECT FROM BRAC 1995
Anniston, Alabama	Heavy Tracked Combat Vehicles & Small Arms	Receive combat vehicle workload from Letterkenny and Red River Army Depot
Corpus Christi, Texas	Rotary Wing Aircraft and associated equipment	No Affect
Letterkenny, Pennsylvania	Towed & Self propelled artillery tactical missile systems	Terminate depot maintenance, tactical missile guidance systems. workload to Tobyhanna Army Depot or to private-sector, combat vehicles workload to Anniston Army Depot
Red River, Texas	Light to medium combat vehicles; wheeled tactical vehicles and troop support equipment.	Downsize maintenance operations retain Bradley family of vehicles including Multiple Launch Rocket System, transfer remaining workload to Anniston Army Depot or private-sector.
Tobyhanna, Pennsylvania	Communications and electronics systems	Receive ground communications/ electronics from Sacramento Air Logistics Center and missile workload from Letterkenny Army Depot

TABLE 1.1 Source Ref: 42, p4

facilities. Finally, the GAO raises questions about how DoD plans to comply with statutory requirements such as 10 U.S.C. 2469 which requires competition subsequent to privatizing depot maintenance workloads valued at not less than $3 million." [42, p6]

2. The Congressional Depot Caucus Voices Concern

The researcher had the opportunity to interview former Congressman Glen Browder, who was the both co-chairman of the House Depot Caucus and the representative for the Congressional district of the ANAD. [5] Congressman Browder emphasized during the interview that the whole privatization/outsourcing discussion was a misguided debate. He wanted to ensure it was clearly understood that the scenario was not a bunch of parochial politicians seeking pork for their district versus the well-meaning, war-fighting, uniformed members of the Pentagon. He said although this is the popular picture, nothing could be further from the truth. He asked the rhetorical question: "where do these political appointees, who are pushing for privatization/outsourcing, come from?" -- defense contractors -- "where will they go back to after their term has ended?" -- defense contractors.

Congressman Browder said the House Depot Caucus is "politically suspicious" that privatization/outsourcing is not truly in the interest of the "fighting men and women." He said he had spoken with "war-fighters" who feared privatization/outsourcing depot-level maintenance and repair. He further commented that the Depot Caucus was interested in doing what is right for our country: the war-fighter and the taxpayer. Congressman Browder was able to quote GAO findings regarding DoD being unable to "prove" cost-savings available through privatization/outsourcing depot-level maintenance and repair. He said it is too easy for defense contractors to submit faulty estimates and "buy-in" to the depot contracts. He also pointed out the lack of actual competition in previously competed depot maintenance contracts.

Congressman Browder expressed concerns regarding the responsiveness and ability to control cost of the private-sector. He raised questions regarding the private-

sectors' ability to strike or possibly go out of business. He expressed concerns that if the private-sector wanted to go out of business, the government could be forced to subsidize the private-sector at a cost that is higher than the current price.

In concluding the interview, Congressman Browder emphatically stressed that, "Certain core functions a Nation should always maintain control of. (The Depot Caucus) doesn't fight privatization as a whole, only politically-motivated campaign contributions."

H. THE RELATIONSHIP BETWEEN GDLS AND ANAD

GDLS and ANAD are both in the business of supporting the Abrams Main Battle Tank (MBT). ANAD has been the Army's primary source for depot-level maintenance and repair for MBTs since its establishment in 1942. ANAD is located in Anniston, Alabama. It encompass 25 square miles of land and employs 2,647 personnel. They specialize in their capability to design, manufacture and refurbish tracked-vehicle components. Due to their high standards of quality, ANAD is designated as the Center of Technical Excellence for the M1 Abrams MBT and the designated candidate depot for several other tracked-vehicles. GDLS is headquartered in Sterling Heights, Michigan. They have facilities scattered throughout the U.S. that specialize in the design, manufacturing, assembly and support of armored weapon systems and electronic products for the U.S. Army and U.S. Marine Corps and a number of allied nations. They possess 55 years experience, employ 3,500 personnel, and operate several large facilities dedicated to various portions of their organization's mission. GDLS has produced the Abrams since their purchase of the tank-building subsidiary of Chrysler in 1982. Chrysler Corporation had also manufactured the predecessor to the M1 Abrams, the M60 series. GDLS also operates the Government-owned Lima, Ohio facilities where the M1 Abrams was produced.

The Lima Army Tank Plant (LATP) was originally established to support tank repair for WW II and was subsequently laid-away until it was reactivated and modernized

for the production of the M1 in 1977. The LATP is situated on 400 acres, with 800,000 square feet of dedicated manufacturing space.

GDLS and ANAD have worked together to capitalize on their comparative advantages. In the early 1990's the LATP and ANAD began working together to upgrade older M1 Abrams to the M1A2 configuration. This operation entails ANAD disassembling the older M1's, rebuilding major components, and shipping the hulls and rebuilt components to LATP for reassembly and integration of the A2 upgrades.

In addition to their work together on the M1A2 upgrade and the AIM XXI project, GDLS has entered into an Interservice Support Agreement through the Tank-Automotive Command (TACOM) for the lease of 20,000 square feet of workspace from ANAD. GDLS now performs work on the Gunner's Primary Sight (GPS) of the M1 Abrams in the ANAD facilities.

This collocation of public and private workers could invite suspicions of encroachment and job insecurity. When interviewing Congressman Browder and an ANAD business planner, the researcher asked about the reaction of ANAD's unionized labor force to the defense contractors coming to work at the ANAD facilities. Both responded that initially there was a great deal of agitation among the union workers. The union workers expressed fear of lost jobs and ultimately the privatization of ANAD. They expressed a belief that the Government had "let the fox into the hen house." However, after local politicians and ANAD management showed the workforce that the influx of funds from the lease and the use of excess capacity was actually in the best interest for ANAD, the fears subsided and there has been little resistance past the initial hump.

I. CHAPTER SUMMARY

There are many issues surrounding the support of the U.S. Military's weapon systems. These issues are highly-complex, and they involve political, personal and legislative agendas. The statutes and policies governing the PPC often conflict or are overly burdensome. Therefore these issues are not likely to be resolved in the near future.

Too many of the individuals involved in making policy behave as though the question of who should provide support to the military weapon systems is an "all or nothing" wager. This attitude is extremely divisive and only leads to a stagnation or stalemate. While this attitude may help defend turf, it does nothing to free-up desperately needed modernization dollars for our aging fleet.

III. THE M1 ABRAMS, PARTNERING, AND THE AIM XXI PROJECT

A. INTRODUCTION

The military might and true shock affect of armored vehicles was fully realized, for the first time, during WW II. Both the German and the Allied Forces successfully turned the tide of many battles through the use of tanks. The MBTs of today are significantly more sophisticated than those of WW II. Today's MBTs possess integrated software (SW), infrared Thermal Imaging Systems (TIS), digital display panels, and the ability to acquire and kill targets from an unclassified distance of 3,500 meters, while on the move.

The purpose of this chapter is threefold. First, to provide the reader with background on the development, fielding, and support of the M1 Abrams. Second, to introduce the reader to the partnering concept. Last, provide the reader with an understanding of the AIM XXI project.

B. THE M1 ABRAMS MBT

1. Development

The M1 program was established in December 1971. It was originally designated the XM1 to signify its experimental status. In February 1972, the Army activated a task force consisting of the user, trainer, and developer participating in the concept exploration for the new MBT.

In June 1973, two companies were awarded contracts for prototype development. Each contractor had to develop a MBT that met all operational requirements with a unit cost of not more than $507,790, in FY72 dollars. The Defense Division of Chrysler Corporation (now GDLS) was awarded a contract worth $68.1 million. The Detroit Diesel Allison Division of General Motors Corporation was awarded a contract worth $88 million. In February 1976, both companies submitted prototypes to the Army for operational and engineering testing. In November 1976, the SECDEF announced that the Chrysler Corporation had been selected to enter Full-Scale Engineering Development

(FSED). FSED has since been renamed: Engineering Manufacturing and Development (EMD).

Chrysler's three-year FSED contract was worth $196.2 million. During this time they produced 11 XM1 pilot vehicles and the associated spares at the Government Owned - Contractor Operated (GOCO) Detroit Arsenal Tank Plant.

When Chrysler sold their Defense Division to General Dynamics in March 1982, Lima Army Tank Plant (LATP) was reactivated and upgraded for the production of the M1. The Army's original intent was to procure 3,312 M1s at a cost of $4,900 million. After two subsequent changes, the procurement goal grew to 7,467 M1s by the end of FY88. This caused the tank manufacturing facilities to double production during their second year of manufacturing, from 30 per month to 60. This increased production rate was sustained until January 1984.

2. M1 Improvements and Upgrades

When GDLS switched production to the Improved M1, in 1985, they had produced 2,374 M1 tanks. The Improved M1 was followed by the M1A1. The M1A1's first production run was completed in August 1985 and continued until early 1993. After delivery of the first 299 M1A1s in April 1991 the Detroit Arsenal Tank Plant operations were discontinued. At this time, between the two tank plants, 7,467 MBTs had been delivered. Production of M1A1s continued at LATP. In December of 1992 the SECDEF authorized Phase I to upgrade 210 M1s to the enhanced M1A2 configuration. Phase I called for GDLS to deliver four prototype vehicles and 206 production vehicles. Production was scheduled from October 1994 through September 1996.

The U.S. Army funded $7.4 billion for the M1A2 upgrade program. Their goal was to field a total of 1,079 M1A2s. Additionally, 792 M1s were scheduled for upgrade to M1A2 configuration from September 1996 through 2003. This schedule, if successfully funded, represented an average of 120 M1s going through upgrade per year; the minimum

number needed to sustain a viable tank industrial base. Figure 3.1 is a picture of the M1A2.

M1A2

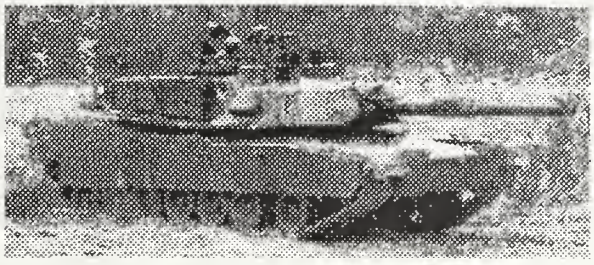

Figure 3.1

3. Proven Capabilities and Foreign Military Sales (FMS)

GDLS does engage in FMS with allies of the U.S. The M1 is a sought-after weapon system. This is especially true after its documented success during operations in South West Asia (SWA). M1s have been sold to Egypt, Saudi Arabia, and Kuwait. The M1 has unarguably proven itself capable of thriving in the most austere environments. After the operations in SWA, the DoD released provisional information on the performance of some key weapon systems. The following are extracts on the M1 MBT: [13, p138]

> After 100 hours of offensive operations, the operational readiness rates for both the VII Corps and the XVIII Airborne Corps exceeded the Army's 90 percent standard. Especially noteworthy was the night move by the 3rd Armored Division covering 200 km (120 miles). None of the more than 300 tanks in the division broke down.
>
> Seven separate M1A1 crews reported being hit by T-72 tank rounds. These M1A1s sustained no damage, attesting to the effectiveness of our heavy armor. Other crews reported that the M1A1 thermal sight allowed them to acquire Iraqi T-72s through the smoke from the oil well fires and other obscurants. The T-72 did not have the same advantage. This situation gave the Abrams a significant edge in survivability, engagement range, and night maneuver. Additionally tank crews reported

that the M829A1 tank round was extremely effective against the T-72. In sum, the combined performance of the Abrams armor, thermal sight and ammunition attest to the systems' exceptional lethality and survivability.

Of the 1,955 M1A1 Abrams tanks in theater, four were disabled and four were damaged but are repairable. No M1A1 crew members were killed by enemy fire in the many tank engagements.

Although the M1 has performed marvelously since its inception in 1971, it was designed for a service life of only 20 years. The M1 is fast approaching the end of its intended service life. However, due to the shrinking defense budgets and subsequent decreasing modernization dollars, the successor to the M1, the Block III MBT, was canceled. With the cancellation of the Block III there are no definitive plans for a follow-on to the M1A2. Therefore, the Army made the decision to extend the service life of the M1 from 20 years to 40 years.

4. Depot-Level Maintenance of the M1 MBT

The M1 is a modular design and was not originally intended to go through depot-level maintenance as a complete system. However, in the mid 1980's, the Army realized the need for the capacity to overhaul M1s that had been damaged in hostile encounters. To accommodate this overhaul capability the Army developed the Depot Maintenance Work Requirements (DMWR) for the M1 which serves as a repair manual for depot-level maintenance and repair. They also invested in the personnel training and equipment pre-requisite to conduct this task at the depot-level.

C. PARTNERING

1. Introduction

The concept of partnering is relatively new and is being constantly expanded. It was originally thought of as just a way to facilitate Alternative Dispute Resolution (ADR). However, due to its unlimited possibilities, it has quickly grown into its current, but

evolving state. Partnering is not a contractual relationship. It is two or more separate entities agreeing to jointly work together to complete a task. The partnering arrangement is sought to capture the comparative advantages of the separate business units. The organizations involved must collectively determine where their individual strengths reside, and which organization can most efficiently provide the service or produce the product. The arrangement must be focused on the knowledge that the partnership has a synergistic effect for all parties involved. Trust and open communications are absolutely necessary for a partnership to succeed. The partners must invest in up-front, early communications to clearly define the roles, missions, and the end-state goals of the partnership. These early meeting will greatly decrease the amount of later misunderstandings as the project matures. To best ensure that all parties, especially senior management, are "bought-in" to the outcome of these early meetings, it is recommended to capture the results of these early meetings in either a mission statement for the key participants, or a charter/memorandum of agreement signed by senior management from all parties of the partnership. [3, p24-27]

Acquisition Reform (AR) has greatly facilitated the Federal Government's ability to partner with private-industry. Prior to AR, public facilities were viewed as incompatible with private-industry. Now, many DoD agencies have proven the opposite to be true. By establishing successful partnerships and teaming arrangements with what were once thought to be their most feared competitors, they have proven that the public and private sectors can work together to create "win - win" opportunities. [24]

The Army Materiel Command (AMC) has written a handbook for promoting successful partnering arrangements. This handbook is used as the primary source of information throughout this section of Chapter III. Throughout the handbook, they place tremendous emphasis on communication and teamwork. AMC states "partnering is an essential component of the AMC ADR program, aimed at avoiding contract disputes before they impact contract performance." [15]

The Honorable Gilbert F. Decker, Former Assistant Secretary of the Army (RDA) promoted partnering by saying: [16]

> Partnering is a natural extension of the Integrated Product Team concept. It provides a flexible framework for government and industry team members to work together to solve problems and informally resolve disputes. This helps reduce program costs and speeds the fielding of Army equipment.
>
> To paraphrase the late, great Vince Lombardi--Partnering isn't everything; it's the only thing.

2. Goals and Benefits of a Partnering Arrangements

The handbook provides many useful guidelines for fostering a successful partnering arrangement. More importantly, the handbook lets the reader know what they have to gain from a partnering arrangement. They do this by clearly defining the major goals and objectives of the partnering arrangement and identifying some of the benefits that have already been realized. Figure 3.2, taken from the AMC Partnering handbook, illustrates some of the benefits and attitudinal changes that a healthy partnering arrangement can foster. In this same section there are three quotes that very simply and eloquently explain the partnering arrangement. [15]

> 1) Partnering is primarily an attitude adjustment where the parties to the contract form a relationship of teamwork, cooperation, and good faith performance. Partnering requires the parties to look beyond the strict bounds of the contract to develop this cooperative working relationship which promotes their common goals and objectives.
> 2) Partnering constitutes a mutual commitment by the parties on how they will interact during the course of the contract, with the primary objective of facilitating improved contract performance through enhanced communications.
> 3) Government and Industry must work together, communicate their expectations, agree on common goals and methods of performance, and identify and resolve problems early on -- or risk bringing both partners to the ground.

There are many possible benefits that should evolve as a result of the partnering arrangement. The following is a list of these benefits along with a concise explanation. [17]

- Partnering establishes mutual goals and objectives.

A common focus on mutual goals and objectives encourages all parties involved to seek "win-win" solutions to situations as they occur. The realization that all parties' ultimate success or failure is dependent upon everyone else's success or failure, fosters an environment focused on the success of the team.

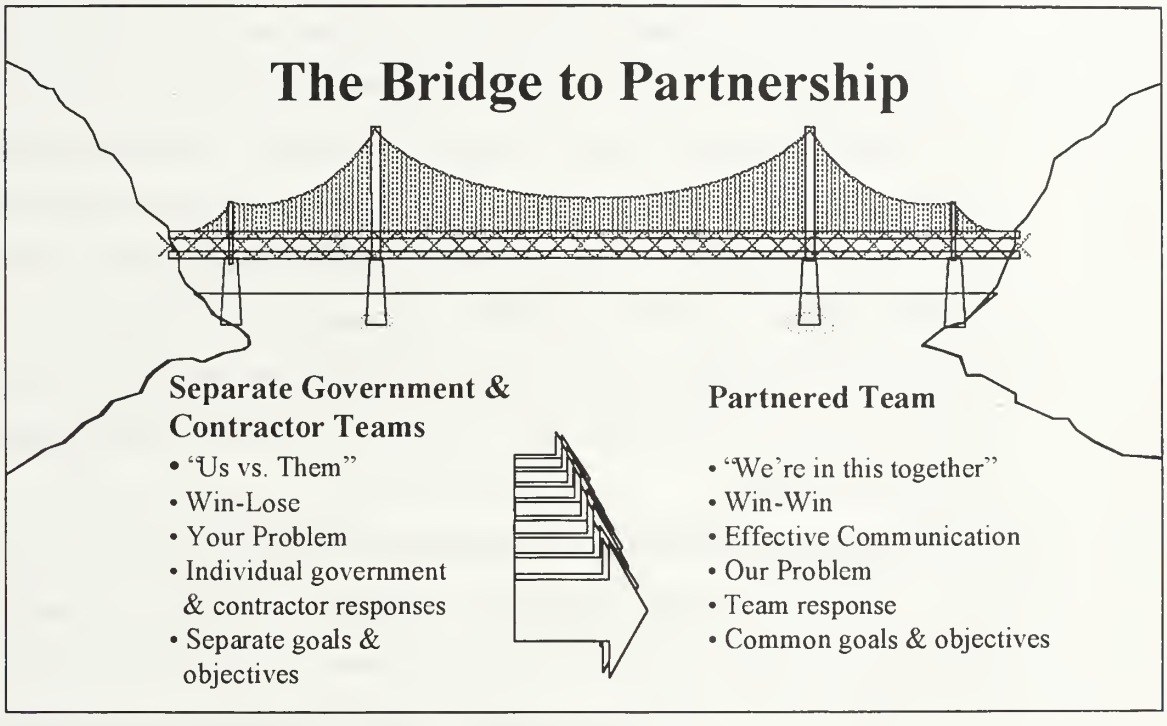

Figure 3.2 Source: Ref: 17

- Partnering builds trust and encourages open communication.

As the partners begin to understand each other and communicate honestly and openly, trust and mutual respect should grow. This dynamic is cultivated by the frequent interactions of all parties, early-on, while they are working together to develop their contractual relationship.

- Partnering helps eliminate surprises.

Surprises frequently result in costly schedule slips and often lead to disputes and litigation. An environment in which the partners frequently communicate and have developed a mutual respect and trust for each other is likely to mitigate many surprises.

- Partnering enables the parties to anticipate and resolve problems.

Unknowns exist in all projects. This is especially true as we constantly expand the envelope of technology. What ultimately defines any team is how they react to adversity. The partnering arrangement encourages all parties to "own" the problem instead of looking for ways to "blame the other guy." During early discussions of the project, the partners will work together to identify the unknowns and develop contingency plans to deal with the unknowns as they occur. Having all partners involved in this process helps ensure that the project is viewed from multiple angles, this greatly enhances the probability of identifying the most unknowns early. Known-unknowns are dangerous, but planned for. However, unknown-unknowns, have surprise on their side and can inflict catastrophic damage on a project.

- Partnering avoids disputes through informal conflict management procedures.

One of the suggested steps for forming a partnership is developing a mutually agreed upon conflict resolution process. This identifies the roles and responsibilities of the Government and Industry to elevate issues through the appropriate organizational levels to avoid inaction and personality conflicts.

- Partnering avoids litigation through the use of Alternative Dispute Resolution.

As the partners seek to achieve "win-win" solutions, identify unknowns early, and resolve conflicts informally, the necessity for litigation in administrative and judicial forums is minimized.

- Partnering reduces paperwork.

The partnering arrangement concentrates on successful contract performance rather than case building and documenting for documentation's sake.

- Partnering reduces the time and cost of contract performance.

Due to the focus on honest communications and raising issues early in the process, parties involved in a partnering arrangement have experienced that they are able to meet or exceed schedule requirements and avoid costly mistakes and rework.

- Partnering reduces administration and oversight.

A combination of increased communication and empowerment to make decisions at lower levels, will reduce the necessity for layers of administration and oversight.

- Partnering improves safety.

All parties taking joint responsibility for ensuring workplace safety for both contractor and Government employees will reduce safety hazards and avoid workplace accidents.

- Partnering improves engineering efforts.

The partnering process streamlines engineering activities and the value engineering process. Through streamlining and expediting these processes the participants will see the results of their actions more quickly. This will reinforce the importance of these activities and encourage them to more aggressively pursue value-added engineering efforts.

- Partnering improves morale and promotes professionalism in the workplace.

Since partnering encourages empowerment, open communications, and establishment of common goals, the parties involved are more likely to feel a sense of ownership, which ultimately leads to improved morale.

- Partnering generates harmonious business relations.

Partnering requires all parties to agree on a common charter to work together, through thick and thin, toward the accomplishment of the projects goals. The knowledge that you are in this together, to the bitter end, relieves many of the stresses of a normal joint venture and fosters a more harmonious relationship.

- Partnering focuses on the mutual interests of the parties.

Partnering foregoes the normal process of the parties separately developing their goals and objectives for the union, and then later meeting to negotiate the "team's" goals and objectives. Partnering encourages the parties to jointly develop the projects" goals and objectives which will also satisfy the partners goals and objectives. Foregoing position-based negotiation, which usually is not "win-win" focused, allows the parties to see each other as partners from the beginning.

Although there are many benefits associated with a partnering arrangement, it is not mandatory. Partnering requires personal commitment by all parties involved, especially senior management. Since personal commitment and cultural change cannot be mandated, voluntary acceptance is imperative. Partnering is not a one-way street. It cannot work if all parties are not committed to the achievement of the mutual goals and objectives of the partnership. Partnering is a business opportunity. There could not be a business opportunity without an associated business risk. Senior managers within both the Government and Industry must understand this and be willing to commit the requisite resources for ensuring success of the partnership. Entering into a partnering arrangement does not signify a waiver of the parties' contractual rights and it is not inconsistent with any acquisition-related statutes or regulations. Also, partnering is not contrary to the Government's business interest. The goal of the acquisition process is to efficiently, effectively, and economically procure quality systems, supplies, and services for the user. [19]

3. Critical Elements of a Successful Partnering Arrangement

Although each partnership will be tailored to best fit the needs of the involved parties, the handbook identifies six elements which are imperative to a successful partnering arrangement. The following is a list of these six critical elements along with a concise explanation. [18]

- Preparation.

  The parties entering into a partnering arrangement must understand the partnering process and believe that it can only improve on the current way of doing business. Partnering requires cultural change and will only flourish in those organizations prepared to accept the changes. All parties involved must be willing to allocate the up-front investments necessary for long-term benefit realization.

- Commitment.

  A demonstrated unwavering commitment by all parties involved, especially senior managers, is critical to the success of the partnering process. This commitment must be communicated both internal and external of the parties and all parties must be committed to the success of each other.

- Inclusion of appropriate parties.

  Team formation is critical to the processes success. In forming the partnering team, you must involve everyone who can impact the performance of the contract. "The partners must carefully choose which organizational elements will be represented as well as which specific individuals should participate." Also, the participation of subcontractors, users, and contract administration personnel must be considered.

- Clear definition of the roles.

  "Participants in the Partnering process must fully understand and accept their specific roles and responsibilities and be empowered with the requisite

decision-making authority in order for the Partnering arrangement to be successful."

- Use of the Partnering tools.

The handbook identifies the following tools to use throughout contract performance to maintain focus and direction.

  - The Charter
  - Goals and Objectives
  - Mission Statement
  - Problem Identification and Resolution Process
  - Conflict Escalation Procedure
  - ADR Approach
  - Evaluation Methodology

- Reinforcement and follow-up.

After establishing goals, objectives, and a performance baseline, the parties must regularly meet to reinforce the goals and objectives and measure their performance against the baseline.

4. AMC's Partnering Model

AMC has developed a Model in order to facilitate the Partnering Process. Figure 3.3 depicts that model. The model addresses four crucial steps in the partnering process. The following is a discussing of the four steps AMC has identified in the partnering process.

- Getting Started. [22]

The partnering process can be applied to any action involving contractual performance. However, all parties must be fully-committed to the partnership. Anyone can recommend using the partnering process by identifying the benefits to the PCO or the Program Manager (PM). The following quotes clearly define the most suitable organizations to consider partnering.

Partnering is most beneficial when the parties believe that traditional contract administration methods may prove to be ineffective, particularly in a downsizing environment.

Partnering is particularly valuable to organizations committed to DoD acquisition streamlining and cycle-time reduction, and for those seeking a process that identifies and resolves problems early and without the need for costly and time-consuming litigation.

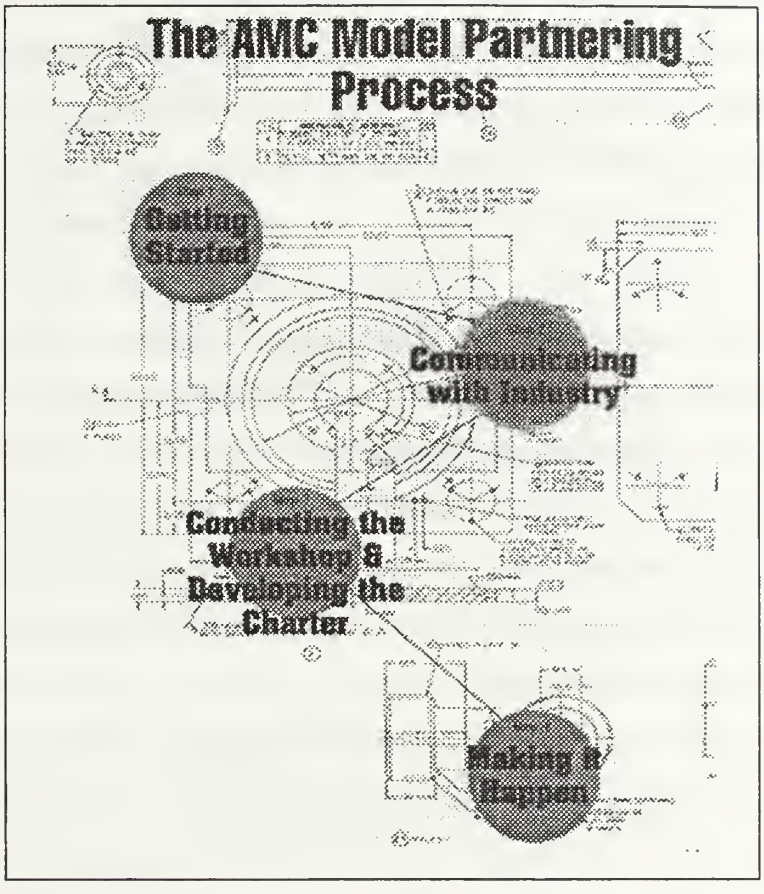

Figure 3.3 Source Ref: 22

In selecting a contract to partner, experience has proven that contracts best suited for success are technically complex; involve several major players; are for the acquisition of critical items; or anticipate identifiable problems. The handbook suggests that cases in which the contractor and Government have had adversarial relations are excellent candidates for partnering. The partnering process is best

applied to contracts of a two-year or longer duration, unless the parties are experienced in the partnering process.

Commitment to the partnership by all stakeholders is imperative. The arrangement must have senior management and those who are critical to program success, within Government and Industry, supporting and advocating the partnership. The partnering arrangement must be nurtured through periodic meetings to reinforce the commitment of stakeholders and introduction of any new members to the partnering process. The participants in the partnership must be empowered to make binding decision for their areas of responsibility. This level of trust is fundamental to the streamlining and trust which partnering is developed to produce.

AMC suggests that each party designate "champions" of the partnership. These champions should be senior, high-profile individuals whose influence and power can reinforce the organization's commitment to the partnership. Their responsibilities will include overseeing the project, reinforcing the team approach, overcoming resisting forces, participating in resolution of issues escalated to their level, celebrating success, and maintaining a positive image for the project.

- Communicating with Industry. [23]

Again, anyone can recommend application of the partnering process. However, the Government should extend an invitation to partner early in the acquisition process. The handbook suggests a good opportunity for AMC organizations to express their desire to partner, is at Advance Planning Briefings for Industry (APBI). APBIs is a forum where Government representatives describe current and future acquisition programs to prospective contractors. The handbook also urges the Government to thoroughly explain the partnering concept, as it may be the first time some of the contractors have been introduced to it. The procuring activities should begin discussing their desire to partner at the

pre-solicitation conference and ensure that the partnership be an agenda item at the post-award conference.

- Conducting the Workshop and Developing the Charter. [20]

The handbook suggests that, in most cases, the use of a facilitator-directed workshop will help ease the parties through the transition to becoming partners. The facilitator is a neutral party who acts as an honest-broker to get the parties organized and helps lead the parties through the partnering workshop. The facilitator is instrumental in assisting the partners in the development of their Charter, identification of potential problems, and development of the Conflict Escalation Procedure (CEP).

Preparation is critical to the success of the workshop. The degree of success achieved during the workshop is usually directly proportional to the amount of effort the parties invest into preparation for the workshop. The facilitator can assist the parties during their preparation. In fact, it is recommended that the facilitator be involved in the parties preparation for the workshop. If the parties are new to the partnering process, the facilitator can assist in keeping them focused on the partnering process. It also increases the facilitator's understanding of contract terms and issues. This understanding of both sides will enhance the facilitator's ability to aid the parties through the tough issues during the workshop.

It is important to include, in both the workshop and preparatory training, all the individuals necessary for the partnership to succeed. It is important that everyone understand the goals of the partnering process and have a clear understanding of the impact this arrangement will have on their roles and responsibilities. Another reason to include all potential players in the preparatory training is this is the time the parties separately review the contract and identify potential problems which may arise during contract performance. If all the functional experts are not involved in both the preparatory training and the workshop, these problems may manifest themselves at times when it is much more

costly and time-consuming to fix. It will also likely lead to the parties doubting each others professionalism and ability to complete the task.

It is best to choose a neutral site to conduct the workshop. The neutral site removes all distracters associated with being at one's normal place of work, does not make one parties feel as though the other has the 'home court advantage," and enhances the team-building environment.

The partnering workshop's purpose is to conduct team-building, initiate the partnering process, and create the momentum to drive the partners toward the accomplishment of mutual goals and objectives throughout the contract performance. The workshop is a critical, up-front investment in the partnership that should produce many long-term benefits. The length of the workshop depends on the complexity of the contract, experience of the participants in Partnering, the number of partners, and the time needed for team-building. There are six deliverables which the workshop should produce.

1) The Partnering Charter. (mission statement, goals, and objectives)
2) Specific program issues and concerns, with an Action Plan developed for each.
3) Conflict Escalation Procedure.
4) Alternative Dispute Resolution approach.
5) Metrics for the assessment of accomplishments
6) Reinforcement techniques.

- Making it Happen. [21]

Partnering, like most things, if left unattended and unnurtured, dies. All of the individuals involved in the workshop must not forget or abandon the strides made during the workshop. The parties must trust the products of the workshop, follow agreed upon procedures, frequently communicate with their counterparts, and make decisions which are mutually beneficial to all parties of the partnership.

Although a deliverable from the workshop was specific program issues and concerns, with an action plan developed for each; it is improbable that all potential problems were identified. It is also important to understand that obstacles will occur; however, they should not be seen as insurmountable if the parties use open and honest communication to breech them. The parties must capitalize on the synergism of their arrangement to solve problems. When confronted with a problem, they must foster a positive attitude, avoid blame, avoid surprises, seek mutual accountability for problem resolution, and embrace change.

Periodic reviews are a necessary component of partnering. These reviews should be at regular intervals, not just when problems have occurred. These periodic reviews can involve assessment of the partnering arrangement, follow-up on workshop issues, or devising metrics for measuring the success of the partnering process. These reviews may address single or multiple issues.

Changes and corrections are a natural bi-product of any relationship. These changes and corrections should not be viewed as indication of failure or error. They must simply be learned from, applied, and documented.

Another important part of nurturing the partnership is ensuring that success is measured and celebrated. This reinforces the goals and benefits of the partnering arrangement and provides additional momentum for future successes.

Now that the groundwork is laid to establish that there is a clear need for a M1A1 sustainment program, and the goals, benefits, and critical elements of partnering have been examined. The next section looks at how the Army and private-industry used the partnering process to develop a sustainment project for the M1A1.

D. AIM XXI

1. Introduction

AIM XXI is an acronym for Abrams Integrated Management for the Twenty-first Century. It is a joint effort; pooling the resources of PM Abrams, the Tank-Automotive and Armaments Command (TACOM), GDLS, and ANAD. The purpose of the program is to extend the service life of the M1A1, reduce the Operation and Support (O&S) costs associated with an aging fleet, insert information management, and maintain an organic industrial base.

The AIM XXI process is similar to the M1A2 upgrade program, however, the process is tailored to the M1A1 requirements. In both the AIM XXI and the M1A2 programs, the MBTs are inducted into the process at ANAD where both the hull and turret are completely disassembled. The majority of hull, turret, and subassembly rebuild processes occur at ANAD, supported by GDLS, the Army Supply System, the Defense Logistics Agency (DLA), and vendors. Components found unacceptable for rebuild to new manufacturing tolerances/performance will be replaced with new material. The components which are not designated for rebuild by ANAD go to either GDLS, vendors, or other depots. The major divergence between the M1A2 upgrade and the AIM XXI M1A1, is the electrical components. The M1A2 receives all new electrical components, including the insertion of digital Line Replaceable Units (LRUs), while the AIM XXI M1A1 only receives all modification necessary to make it current with the final M1A1 production run. After the components are rebuilt they are sent in kits or packages to GDLS for further technology insertions, system reassembly, test, and final acceptance.

The AIM XXI program is divided into three phases to accommodate introduction and proof of the program, required Force XXI capabilities, technology maturation, and the Planning Programming and Budgeting system. The three phases are: Phase I, Proof of Principle (PoP); Phase II, M1A1 Restoration with Technology Insertion; Phase III, M1A2 Restoration with Technology Insertion.

Phase I consist of proving the sustainment concept. Seventeen M1A1s will be processed through the AIM XXI process to a 'better than new" baseline configuration. This AIM XXI M1A1 is considered better than new, because after it has been through the AIM XXI process it will have not only been completely rebuilt to like-new tolerance, it will have had all modifications and Engineering Change Proposals (ECPs) applied to it. This base-lining to one standard M1A1 configuration is a significant undertaking. Since 1989, the M1A1 has had approximately 25,000 ECPs approved and 231 modification kits issued. The PoP began June 1996 and ends December 1997 with the Army Materiel Systems Analysis Activity (AMSAA) final test report. This 19-month period accounts for the rebuild of the vehicles to AIM XXI standard; operating the AIM XXI vehicles through National Training Center (NTC) rotations where they will log a minimum of 1,500 miles of simulated warfare; and failure data collection and analysis.

Phase II consists of rebuilding the M1A1 to the baseline configuration identified in Phase I, and insertion of those technologies that will improve its survivability to a level comparable with the M1A2. Phase II is targeted to begin in FY98 and continue through FY2015.

Phase III consist of integrating the M1A2 into the AIM XXI process. By FY2015, the older M1A2s will be reaching their 20th year of service.

The AIM XXI concept was developed jointly by GDLS and ANAD. During the first quarter FY 96, they marketed the concept, to the Program Executive Officer (PEO) Ground Combat Support and Systems, the TACOM Commander, and the Depot Support Command (DESCOM) Commander, in order to rally support. (It is important to note that AMC's Partnering handbook was not written at the time ANAD and GDLS conceived and marketed the AIM XXI project.) The project was successfully sold as a sustainment program for reasons stated above. During January through March of 1996, GDLS and ANAD worked together to develop a Statement of Work (SOW) and bill of materials.

From March to June, GDLS submitted its proposal and on 14 June 1996 negotiated a $4.1 million fixed-price contract with TACOM for the PoP.

The ultimate decision to pursue the AIM XXI process was based on many factors. One of the principal driving factors was the seemingly uncontrollably cost of O&S for the M1A1. Under current depot maintenance programs the O&S cost are projected to increase by 44 percent, for inflation alone, over the next 20 years. Other factors include: concern regarding the aging fleet's combat readiness; restructuring of Army doctrine from prepositioned to force projection, which requires critical attention to sustainment issues; the decision to extend the service life of the M1 Abrams; a shrinking public and private industrial base; and the slow current M1 modernization process. In addition, it is cost prohibitive to consider upgrading all M1s to the M1A2 configuration. Therefore, the decision was made to upgrade only 1249 M1A1s to M1A2 configuration.

TACOM made the decision to award the AIM XXI contract, sole-source, to GDLS for numerous reasons. Among these are: [1]

- GDLS's intimate knowledge of the M1A1 MBT's, 25,000 ECPs, 231 modification kits, 14,000 drawings and 20,000 process sheets.
- GDLS's skilled and trained workforce.
- No competitive package. GDLS is the only source with system familiarity adequate for technology insertions.
- Duplicative cost associated with duplicative facilities. Since GDLS is already contracted for the M1A2 modification at the LATP, other facilities would have to be identified and equipped for the AIM XXI project.
- GDLS's system is in-place, this significantly decreases the delay time and learning curve associated with starting a new project.
- GDLS's proprietary process which includes special tooling and test equipment. GDLS also owns six custom-designed weld robots that are critical to the process.

- GDLS's established material system of demonstrated venders, and economies of scale.
- Costs of this magnitude could not be recovered in a competitive acquisition.
- An indirect impact of the AIM XXI project is the ability for GDLS to spread their operational overhead over more items. Thus, driving down the unit cost of the M1A2.

The AIM XXI PoP has performed as scheduled. Seventeen AIM M1A1s were delivered to the NTC at Fort Irwin, California, in January 1997, where they were worked into the rotation cycle to achieve, or exceed, their 1,500 mile requirement. There have been several In Process Reviews (IPRs) hosted by TACOM at the NTC; and AMSAA has been steadily collecting data and comparing the cost-per-mile-operated information from the AIM M1A1s against the other M1A1s at the NTC.

2. What Makes AIM XXI a Partnering Arrangement?

The AIM XXI is considered a partnering arrangement for several reasons. First, the concept was developed and marketed jointly by both organizations. The AIM project represents the first time GDLS and ANAD have worked together in developing a SOW and bill of materials. Plus, in contrast to the M1A2 program, the rebuilt components sent to GDLS from ANAD are not viewed strictly as Government Furnished Material (GFM) and are not covered by a Defective Government Materials (DGM) clause. This clause covers GDLS's costs associated with the rework necessary to remove the defective component and its replacement. Lastly, senior leadership from GDLS and ANAD signed a Memorandum of Understanding (MOU) for shaping their arrangement during the AIM process.

E. CHAPTER SUMMARY

This chapter has covered three diverse topics. However, all of these topics are relevant and necessary to provide the reader with requisite knowledge. The topic of M1

Abrams MBT provides the reader with a basic understanding of the military importance, lethality, development, and various configurations of the Abrams MBT. The M1 has proven itself time and again to be a world-class combat vehicle and an essential part of the U.S. Army's ground combat strategy. Also discussed in this section is the Army's decision to extend the service life of the M1, which provides an understanding of the need for some type of M1A1 sustainment program.

The discussion on partnering provides the reader with an understanding of the various attributes of a partnering arrangement. It provides the reader with the possible benefits of partnering arrangements. The model for partnering with industry provides the participants with ideas and recommendations that should help them develop a successful partnering arrangement. The theme that is repeated throughout this section is demand for both full and open communication, and trust between the parties. Without these crucial elements, it will be impossible for the partners to grow and develop; ultimately seeking additional partnering opportunities.

The final section of the chapter provided background on the AIM XXI project; its conception, the different phases of the project, and how a partnering arrangement between GDLS and ANAD developed. It also explains how this relationship is unique to these organizations and how this relationship actually impacted the contract between GDLS and TACOM regarding the treatment of material furnished from ANAD.

Chapter IV is an analysis, using the AIM XXI as a case study, of the issues which can arise when organizations pursue a partnering arrangement. The following are the observations that the researcher will develop and support with the analysis of Chapter IV:

- Partnering is politically an "easy pill to swallow," and allows for both a public and private industrial base.
- Partnering is a natural step beyond Integrated Product Teams (IPTs).
- Communication must involve all key players necessary to make the partnering arrangement successful.
- Partnering can save money, time, and other resources.

- Partnering arrangements between public and private operations can be difficult to administer.
- Partnering arrangements are difficult to sustain when expectations change.
- Both parties must see long-term benefits in order to maintain long-term partnering arrangements.
- Partnering arrangements must have established metrics to measure success.

IV. AIM XXI CASE ANALYSIS

A. INTRODUCTION

This chapter provides an analysis of the Abrams Integrated Management for the Twenty-First Century (AIM XXI) project from a partnering perspective. The focus of this chapter is on what we can learn from Anniston Army Depot's (ANAD) and General Dynamics Land System's (GDLS) partnering arrangement during phase I of AIM XXI. These issues (not all-inclusive) were derived from literature available; personal and e-mail interviews with program personnel, depot personnel, program integrators, and contracting officers; and interviews with business planners (Government and contractor).

B. OBSERVATIONS AND ANALYSIS

1. Partnering is politically an "easy pill to swallow," and allows for both a public and private industrial base.

Chapter II identified the politically-charged and divisive environment regarding the performance of depot-level maintenance. Although chapter II focused primarily on issues associated with outsourcing depot-level maintenance, it identified that depot-level maintenance and Public/Private Competition (PPC) is a "front-burner" issue. Unfortunately, the debates over outsourcing had traditionally been approached as a zero-sum game in which winner takes all. The outsourcing approach did not allow for compromise, nor did it focus on balancing and preserving both the public and private industrial base. This created an extremely threatening environment. As implied in the interview with former Congressman Browder, a culture of suspicion and mistrust already exists between the public and private workforces and there is also a mistrust between our executive and legislative branches of Government.

Creating a partnering arrangement can smooth these suspicions and mistrusts by allowing the public and private sectors to work together as a team, instead working

against each other in an adversarial manner. Partnering arrangements become the euphoric answer by offering a win-win solution.

While partnering does require compromise, or work-sharing, this "slice of the pie" is a much better proposition than having no pie at all. In addition, the very nature of the partnering arrangement indicates that all parties are deriving some benefit from the partnering arrangement.

This concept of a partnering arrangement is relatively easily sold at strategic-levels, but it is sometimes a hard sell at the worker-level. The interview with former Congressman Browder illustrated this phenomenon. He stated that implementation of the AIM XXI concept was met by opposition from some of the ANAD workforce. They were opposed to the perceived encroachment of their jobs. The Congressman said, that to provide "shared vision," senior leadership did intervene to discuss, with the workers, the benefits of a partnering arrangement, and explain the implications of the BRAC on an already shrinking depot system. After this interjection, or education process, the workforce more clearly understood the reasoning behind the decision to partner.

2. Partnering is a natural step beyond Integrated Product Teams (IPTs).

Acquisition Reform (AR) has emphatically supported the concept of IPTs in which multi-disciplinary teams are formed to ensure that "the right thing is being built right, the first time."[31] The team members are not only from diverse functional backgrounds, they come from both the Government and contractor. IPTs have repeatedly proven their worth by preventing costly rework. As IPTs become more widely accepted, and as industry and the Government become more comfortable working together to design and develop superior products, the next step will be working together to manufacture these products.

AIM XXI was a "grass-roots" concept developed jointly by GDLS and ANAD's business planners. From previous projects, these departments had established a working relationship and saw an opportunity to pursue a mutually-beneficial partnering arrangement Together, they marketed and developed support of the AIM XXI concept.

3. Communication must involve all key players necessary to make the partnering arrangement successful.

Partnering requires that all parties clearly understand and agree to established roles and responsibilities prior to entering the venture. Plus, this agreement must be expressed to all key players in the process. Communication is the key to addressing this issue. A lack of clearly communicated roles and responsibilities leads to unnecessary delays, confusion, and a lack of confidence in the partnering arrangement.

The AIM XXI project was marketed as a clearly defined concept. Unfortunately, this was not necessarily the case. After the concept was approved, it became apparent to the individuals from TACOM, who acted as facilitators, that many of the loose-ends had not been tied-down. This was creating a great deal of friction between mid-level management at GDLS and ANAD. Some of the TACOM facilitators stated that it was as if many of the mid-level managers had not been read-in on the arrangement.

In addition, TACOM felt there was apprehension to communicate openly on the part of mid-level management from both GDLS and ANAD. They said that both parties were quick to elevate issues to TACOM to resolve, rather than attempting to resolve the issue at their level.

4. Partnering can save money, time, and other resources.

Partnering typically involves two or more established organizations who possess comparative advantages to enhance the overall performance of all partners involved, resulting in a "pareto efficiency." Since the organization's core competencies compliment each other, a synergistic situation is created, allowing the partnership to accomplish a project usually more quickly, and at less cost.

Phase I of AIM XXI exemplified how two organizations in a partnering arrangement can pool resources, identify congruencies, and quickly initiate an extremely successful project. Because ANAD and GDLS were able to work together, they were able to progress from concept to implementation in less than six months. Interviews with

sources from GDLS, ANAD, TACOM, and LATP revealed unanimous consensus that neither ANAD nor GDLS, working alone, were capable of performing phase I as quickly or any less-costly.

5. Partnering arrangements between public and private operations can be difficult to administer.

As discussed earlier, the public and private sectors function differently. While the private-sector is accustomed to operating under the direction of a contractual obligation, this is not the case for the public-sector.

In the AIM XXI project, a source from the Administrating Contract Office (ACO) stated they felt there was a notable lack of influence over the public-sector. This lack of influence resulted in delays in both coordination and resolution of manufacturing problems. They said they were never able to determine who had control or who administered the effort of ANAD. Since ANAD was not operating under a contract, they were also unable to tell who, if anyone, exercised control of ANAD. They were unclear if the PMO exercised control or if ANAD was self-governing. Seemingly frustrated, they said, "I administer a contract, not a concept." They felt that many times, their hands were tied, and their only recourse for problem resolution was to elevate the issue to the PMO because they only had privity of contract with GDLS.

6. Partnering arrangements are difficult to sustain when expectations change.

Partnering arrangements require a great amount of commitment from all involved parties. Commitment to the project, the partners, and ultimately commitment to the customer. Unfortunately, those commitments, if not deeply rooted, can easily shift toward other opportunities. There are many other sources of influence which ruthlessly compete for the attention and resources in today's competitive market place. This thought of internal competition for resources was illustrated in Defense Science Board's, May 1997,

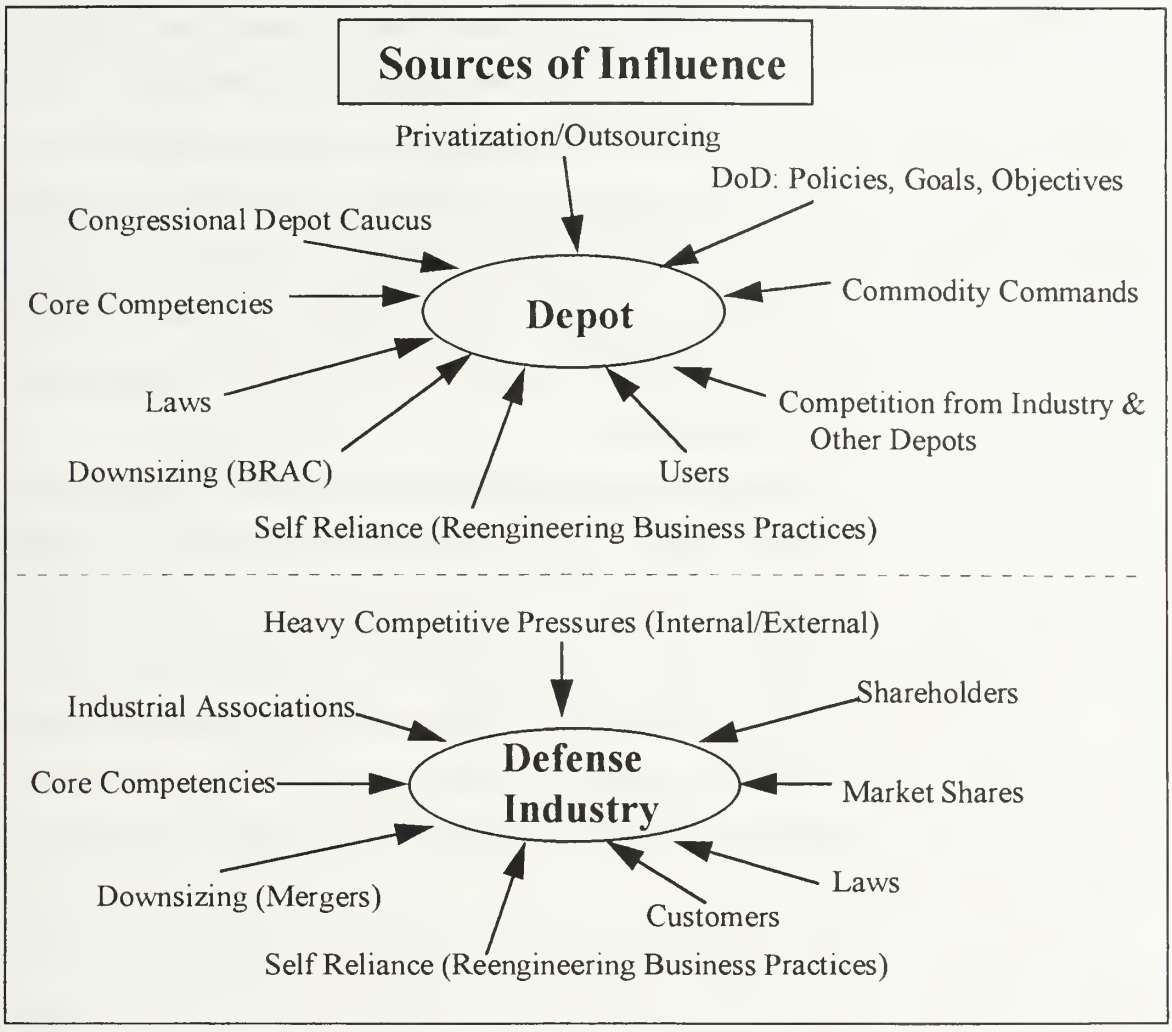

Figure 4.1 Source: Developed by the Researcher

report on *Vertical Integration and Supplier Decisions.* The report stated, "Large corporations sometimes lack a consistent corporate view throughout their diverse business operations. Economic incentives may at times encourage "sister divisions" to have different goals." [36, p26] Figure 4.1, is a general model developed from conversations with COL(Ret) Michael Boudreau and research data from this study. It is an illustration, not necessarily all inclusive, of the many influences impacting the day-to-day operations of both the public and private industrial base.

Although the extent of power wielded by these influences varies greatly, they are all present and their impact upon the partnering arrangement must be considered. These influences can, and do, alter a party's level of commitment to the partnering arrangement.

For example, this is illustrated in the AIM XXI case by the controversy over the Damaged Government Material (DGM) clause of the contract, which was discussed in chapter III. During the negotiations for phase I of the AIM XXI project, TACOM successfully argued that due to the partnering arrangement, the need for a DGM clause for material coming from ANAD did not exist.

The DGM clause became a source of contention shortly after the M1A1s were received at the Lima Army Tank Plant (LATP). For various reasons, GDLS did receive DGM from ANAD. Although ANAD had crews at LATP to assist in the removal of DGM and installation of good components, GDLS did not believe this was fair compensation for the lack of a DGM clause. GDLS stated, during the early days of phase I, that they would never enter into another "No DGM clause" situation. In addition, GDLS quickly began suggesting ANAD act as a subcontractor, to GDLS, for phases II and III of the AIM project.

When GDLS was asked about their reasons for wanting a DGM clause and their desire to use ANAD as a subcontractor, they stated that they felt it was their only remedy for controlling quality. However, when discussing the DGM clause and the desire to use ANAD as a subcontractor, sources from both TACOM and the M1A1 Product Manager Office (PMO) stated they felt GDLS's only desire was for more profit. They explained that the DGM clause affords GDLS much more profit than simply allowing the ANAD's representative at LATP to rectify the DGM situation. They were also suspicious of GDLS's desire to subcontract with ANAD, stating that GDLS would again be able to make additional profit for their "overhead-burden" incurred through administering the subcontract.

7. Both parties must see long-term benefits in order to maintain long-term partnering arrangements.

As stated in Chapter III, parties enter into a partnering arrangement to derive a benefit. This benefit may be gains in profit, reduction of excess capacity, cost avoidance, increase in workload to stabilize workforce, etc. However, if one of the parties believes the benefits gained are not worth the costs expended, the partnership will suffer and probably fail.

This phenomena was indicated in the previous section regarding DGM and GDLS's desire to use ANAD as a subcontractor for phase II and III, of AIM XXI. In addition to that, when GDLS briefed senior Army leadership on alternatives and their recommendations for enhancements to the tank fleet, they appeared to shift attention away from the AIM XXI project's phases II and III. When asked about this, GDLS stated that AIM XXI was encompassed in another proposal for Abrams fleet management.

However, the primary focus of the brief was a push toward additional M1A2s, which translates into less funds available for M1A1 sustainment. Sources at TACOM and PMO, stated they did not support the GDLS's unproven initiatives, and that this maneuver placed AIM XXI at risk. In addition, although ANAD is intimately involved in both the M1A2 and M1A1 process, they were not informed by GDLS of the briefing to Senior Army Leadership. This lack of being forthright concerning intentions also indicates that GDLS was willing to place their partnering arrangement, and the trust already developed, at risk to pursue more promising long-term benefits elsewhere.

8. Partnering arrangements must have established metrics to measure success.

Captain James Anderson, USN, while presenting a seminar entitled, *Measuring Performance in a Contracting Organization* quoted Descartes as saying "An unexamined life is not worth living." [2] This is can easily be paraphrased to say, "an unexamined partnering arrangement in not worth establishing." Without establishing baselines or

measures to determine the success of the partnering arrangement, it is impossible to determine whether or not the partnering arrangement was worth the time and effort invested.

The AIM XXI project never established metrics for phase I to measure the benefits of the partnering arrangements for ANAD and GDLS. ANAD and GDLS stated that the process occurred too fast and furiously to establish metrics for the partnering arrangement. The only common metric established was the cost-per-mile of the AIM XXI tank. This metric was captured for comparison of the Operations and Support (O&S) costs associated with operating an AIM XXI tank versus a M1A1 that had not been through the AIM process. As discussed in Chapter III, this information was used by AAMSA to conduct cost-benefit analysis. While this information was critical for the deter ıation of the success of the AIM XXI project, it could not be used to measure the success of the partnering arrangement.

If ANAD and GDLS had established metrics to measure the success of the partnering arrangement, it would be much clearer whether or not the arrangement was successful. Although phase I of the AIM XXI project was touted as a success because it produced the product on time, it is misleading to extrapolate that the partnering arrangement between ANAD and GDLS was also a success.

V. SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

A. SUMMARY

In the aftermath of winning the cold war, DoD has suffered horrific budget cuts, particularly in their modernization or procurement accounts. As a result DoD is aggressively attempting to identify ways to increase efficiency without harming effectiveness. DoD has identified excess in their infrastructure as an area which is well suited for achieving increased efficiency. While most stakeholders agree that there is excess within the DoD infrastructure, there is no generally accepted approach for reducing the excess.

In the mid 1990's, several reports were published which identified outsourcing as a tool to help DoD maximize efficiency and maintain effectiveness. These reports have been widely accepted by some and harshly criticized for their lack of empirical data by others. The reports proved to be very divisive and created many hostilities in the political arena. However, as with any situation, there were many things transpiring at one time.

One of DoD's initiatives to increase efficiency was Acquisition Reform (AR) which launched several initiatives challenging the public and private sectors to work with each other to increase efficiency and effectiveness. Out of these initiatives has evolved the concept of partnering. Partnering strives to capitalize on the strengths of complementary organizations who have chosen to work together to complete a project or task. The ultimate goal of a partnering arrangement is to increase or create capabilities. These increased or created capabilities allow the organizations participating in a partnering arrangement to accomplish projects or tasks they would not have been able to realize, either as quickly or cheaply, without the help of the partnering arrangement.

However, not all organizations are capable of operating in a partnering arrangement. The parties involved must be willing to put forth the effort to establish and maintain the partnering arrangement. The Army Materiel Command (AMC) has published a handbook on establishing a partnering arrangement. This book outlines the necessary

ingredients for a successful partnering arrangement. Prior to publication, Anniston Army Depot (ANAD) and General Dynamics Land Systems (GDLS) established their own partnering arrangement to pursue a new concept for sustainment of the M1A1. The concept was called Abrams Integrated Management for the Twenty-First Century (AIM XXI).

The AIM XXI concept is detailed in Chapter IV. AIM XXI was divided into three separate phases. The first phase, the "proof of principle," is the focus of the case analysis for this research. Phase I involved ANAD and GDLS in a partnering arrangement to completely rebuild the M1A1 to a "better than new" condition. In short, phase I involved the M1A1's inception into the AIM XXI process at ANAD where they were completely disassembled. Some components were repaired or replaced by ANAD, others were repaired or replaced by either GDLS or other vendors. Then the hull, turret, and repaired or new components were shipped to GDLS for reassemble. After completing the AIM XXI process, the 17 tanks were shipped to the National Training Center (NTC) at Fort Irwin, California. There they were worked into the rotation cycle to determine a cost-benefit analysis of the AIM XXI process.

B. CONCLUSIONS

Too many of the individuals involved in making policy behave as though the question of who should provide support to military weapon systems is an "all or nothing" wager. This attitude is extremely divisive and only leads to a stagnation or stalemate. While this attitude may help defend turf, it does nothing to free-up desperately needed modernization dollars for our aging fleet. There must be an alternative to this school of thought.

Partnering arrangements do offer a suitable alternative. Partnering arrangements, if planned and executed correctly, capture the best practices of both the private and public industrial base. They also provide both the private and public sectors a better appreciation of the unique skills, knowledge, and attitudes which the other is capable of providing.

Partnering arrangements are capable creating a greatly synergistic effect for not only the organizations entering into the arrangement, but they can also create a force multiplier for the entire industrial base.

While partnering arrangements do offer opportunities, they also represent a risk. This risk appears when organizations are not fully vested and embracing the ideas of open-communication, trust, and team-building. If this attitude does not permeate the parties involved in the partnering arrangement, the partnering arrangement is doomed for failure. Partnering arrangements can wield significant benefits, however, these benefits can only be achieved after a initial investment of time and effort to determine first and foremost, if the organizations can work together and share a common vision for the outcome of the partnering arrangement. Without a congruency of outcome, there is no way the parties can develop a workable plan to satisfy their divergent goals.

C. RECOMMENDATIONS

1. Prior to approving any partnering arrangements, or allowing the project to commence, the Program Manager (PM) should thoroughly audit the plan. This audit does not have to be resource intensive. The PM could randomly identify engineers or business planners from both organizations for a discussion of the arrangement. This would work as a truth telling mechanism to ensure the marketers have not sold a concept that has not been thoroughly planned or understood by the individuals responsible for execution of the arrangement.

2. Collect past-performance data on organizations entering into partnering arrangements. Some organizations may misrepresent their long-term intentions to achieve the short-term benefits from the partnering arrangement. For example, if a project would not be approved because it is cost prohibitive, or some other reason, the parties may enter into the partnering arrangement simply to get the contract awarded, or with the notion that if it does not work toward their favor, they can simply back-out of the partnering arrangement for future contracts. This represents a form of "buying-in" which is

intentionally submitting a low bid to get contract, with the intention of driving up the cost throughout the course of executing the contract. This type of "sharp practice" cannot be tolerated. Therefore, the parties should not be allowed to reap the benefits of partnering arrangements if they prove themselves to misrepresent their long-term intentions. Capturing past performance of organizations who enter partnering arrangements could assist to eliminate misleading practices.

3. Ensure metrics which measure the success of the partnering arrangement are clearly defined. It is easy to determine if the project was a success, but it is sometimes difficult to determine if the partnering arrangement was worth the time and effort. Establishing goals and measures to determine if, or to what degree, those goals were achieved, is the only way to truly the only way to form a success oriented team. Disseminating or publishing the metrics provides a catalyst for the organizations to focus upon, and to internally measure their performance. Without this, it is too easy to slip back into the "us vs. them" habit.

D. ANSWER TO RESEARCH QUESTIONS

1. Based on the lessons learned from the AIM XXI partnering arrangement between GDLS and ANAD, what are the critical ingredients for successfully forming a public/private partnering arrangement?

After interviewing several of the individuals responsible for making phase I of the AIM XXI project successful, the researcher has determined that AMC's handbook on "Partnering for Success" is extremely accurate. All of the interviewees cited communication and prior planning as the most important aspects of a successful partnering arrangement. Many of the sources involved in conflict resolution, said that open communication could have saved a lot of time and effort. Although establishing trust between, seemingly competitive organizations, is not an easy task, it is crucial to the success of the partnering arrangement. An early investment of time an energy to develop an environment of teamwork pays tremendous dividends over the life of the partnering

arrangement. This trust which is built during the early stages of team building could be the only thing to stabilize the partnering arrangement during the tough times of the business cycle.

2. What is the overall DoD environment in relation to the performance of depot-level maintenance and repair and how does this influence the AIM XXI program?

As indicated in Chapter II, DoD's policy for depot-level maintenance is to increase efficiency, possibly through competition, while maintaining the requisite readiness to protect national interest. Because of the politically-charged environment surrounding the performance of depot-level maintenance, DoD and political leaders alike seemed to welcome the partnering arrangement as a balanced option to the bitter wars being waged regarding outsourcing. Partnering arrangements are viewed as the best of both worlds. While there are still those who wish relief from legislation inhibiting competition, most feel that partnering arrangements do reduce excess capacity, increase competition, and increase efficiency.

3. How does the Competition in Contracting Act (CICA) impact the partnering arrangement?

Entering a partnering arrangement does not relieve neither the Government nor the contractor from the requirements of CICA. Partnering arrangements are formed for the execution of an individual contract. Unless otherwise justified and approved, the contract must be subjected to full and open competition prior to award every time . The partnering arrangement does not delude this requirement.

4. How does the "Arm's-Length" interface between the public/private sector impact partnering arrangements?

This professional, or "Arms-Length," business relationship must be maintained even if there is a partnering arrangement. The purpose of the separation between the Government and the contractor is to avoid the appearance of favoritism. This is always something for which to strive. However, the partnering arrangement "replaces the

passive, independent, "hands-off" philosophy of the past -- an approach which experience has shown to be both ineffective and manpower intensive -- with a proactive, interdependent, team-based approach for the future." [14, p4] The partnering arrangement "is not an exception to, inconsistent with, or a waiver of any of the rules relating to procurement integrity and standards of conduct." [14, p6] The parties to the partnering arrangement must bear in mind their ethical obligation and act accordingly. Partnering arrangements "cannot be used as a vehicle for the dissemination or exchange of any competition sensitive, source selection or proprietary data or for the premature or unilateral release of acquisition-related information prior to its publication to industry in general." [14, p6]

5. What are the key considerations for a contracting professional in structuring a partnering arrangement?

After interviewing several individuals involved with the AIM XXI project, and asking them, "what advice would you offer to someone considering forming a partnering arrangement," the following is a list of the answers:

- Develop a legal memorandum of agreement
- Determine the work-share split up front.
- Clearly define the limitations of the partnering arrangement.
- Do not oversell the product in pursuit of getting approval.
- Ensure you have open lines of communication and a good understanding of each other's needs.
- Be flexible, but firm in what the contract must state and for what the (parties) are responsible.
- Really stress "teamwork" between everyone involved.
- Have an overarching steering team guide integrated product/process teams. The steering should establish a written charter and each IPT should establish its own written charter and tasks.

- When you hear of a potential requirement, make sure you get yourself involved -- the earlier the better.
- Partnering/teaming requires significant dedication of time in order to take full advantages of its benefits -- take this into account when determining workload assignments.

ACRONYMS AND ABBREVIATIONS

ACO	Administrative Contracting Officer
ADR	Alternative Disputes Resolution
AIM XXI	Abrams Integrated Management for the Twenty-First Century
AMC	Army Materiel Command
AMSAA	Army Materiel Systems Analysis Activity
ANAD	Anniston Army Depot
APBI	Advance Planning Briefings for Industry
AR	Acquisition Reform
BRAC	Base Realignment and Closure
BUR	Bottoms Up Review
CEP	Conflict Escalation Procedure
CICA	Competition in Contracting Act
CORM	Commission on Roles and Missions
DCA	Defense Commissary Agency
DESCOM	Depot Support Command
DFAS	Defense Finance and Accounting Service
DGM	Defective Government Materials
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DMWR	Depot Maintenance Work Requirements
DoD	Department of Defense
DSB	Defense Science Board
ECP	Engineering Change Proposal
EMD	Engineering Manufacturing and Development
FMS	Foreign Military Sales
FSED	Full-Scale Engineering Development
FY	Fiscal Year

FYDP	Future Years Defense Plan
GAO	General Accounting Office
GDLS	General Dynamics Land Systems
GDP	Gross Domestic Product
GFM	Government Furnished Material
GOCO	Government Owned - Contractor Operated
GPS	Gunner's Primary Sight
IPR	In Process Reviews
IPT	Integrated Product Team
JCS	Joint Chiefs of Staff
LATP	Lima Army Tank Plant
LRU	Line Replaceable Units
MBT	Main Battle Tank
MEO	Most Effective Organization
MOU	Memorandum of Understanding
NPS	Naval Postgraduate School
NTC	National Training Center
O&S	Operation and Support
OMB	Office of Management and Budget
PCO	Procuring Contract Officer
PEO	Program Executive Officer
PM	Program Manager
PMO	Product Manager Office
PoP	Proof of Principle
PPC	Public/Private Competition
PWS	Performance Work Statement

QDR	Quadrennial Defense Review
SECDEF	Secretary of Defense
SOW	Statement of Work
SW	Software
SWA	South West Asia
TACOM	Tank-Automotive Command
TIS	Thermal Imaging Systems

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